

Flight, June 4, 1910.

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 75. (No. 23, Vol. II.)

JUNE 4, 1910.

[Registered at the G.P.O.
as a Newspaper.]

[Weekly, Price 1d.
Post Free, 1½d.]



"La Coupe de Aviation," a beautiful conception in marble by Emelino at the Paris Salon.

PRIZE GIVERS, PRIZE WINNERS, AND THE PUBLIC.

A WEEK has passed since we wrote of the necessity for devising some new basis for the awarding of the richer prizes that still remain to be won by the aviator whose lucky star happens to be for the moment in the ascendant—some new basis which will serve the double purpose of encouraging the development of flying machines and at the same time will continue to rivet public interest during the whole period over which that attention is needed for the firm establishment of the new industry on a sound footing in Great Britain. The week that has elapsed has seen at least one great flight—great, that is, judged by the standard of yesterday, but now become almost commonplace by reason of the comparative ease and facility with which these long point-to-point flights are being performed. We refer, of course, to Mr. Curtiss' exploit in flying from Albany to New York down the course of the great Hudson River, by which he secured within a few hours the very substantial sum of a couple of thousand pounds sterling offered by the *New York World* to the first flying man to accomplish the journey with not more than two stops for the replenishment of fuel. It is far from our purpose to belittle either the man himself or his performance—we are far too much alive to the genuine services Mr. Curtiss has rendered to the science of flight and to the merit of his latest accomplishment to dream of doing that, and it is at the same time impossible to pretend that a trip through the air such as that which he successfully achieved is not an astonishing performance. But, we would ask, how much farther is the science of flight advanced as an immediate or direct result of his having won this prize?

He has chiefly proved the obvious once more and has incidentally done very well for himself in the process. Frankly, under the conditions which are at present attached to the major prizes which still remain to be won the relation in which the flying man is beginning to stand to the donor of the prize is the simple one of "heads I win, tails you lose," or something very nearly approaching it. Given ordinarily careful preparation and an average good day for the flight, it is long odds on the aviator being successful in his attempt, even supposing that his machine has undergone no process of evolution in the meantime and remains as it is to-day.

Admittedly it may be urged that had it not been for the public spirit of those who have offered large money prizes in the past, the aeroplane would have remained the relatively crude affair that it was even two years ago. And, at the same time, it may be granted that in the early days of the science, when the history of the development of the machine was far more in the making than it is to-day, the conditions for these large *prix d'encouragement* could hardly be too simple and elementary. It is the money gained by successful flight that has brought development to the stage at which it is. Without the large sums of money that have been provided by individuals and corporations, the bulk of the successful experimenting that has done so much for the science could not have been carried out, for the plain reason that the experimenters could not, unaided, have faced the financial outlay which their work entailed. But the position now is that the experimenter has caught up with the original type of prize-giver, and the time has therefore come when the latter must give himself another

start if he is not to lapse into the position of being the provider of "soft things" for all who care to come along and pick them up.

That aspect of the question would not concern us nearly as much as it does were it not that everything points to our having reached almost the limit fixed by the present-day conditions of prize competitions in their attractiveness to the public—at any rate to the British public. Perhaps we are inclined to lay more stress than is generally deemed necessary upon this point; but it is one upon which we feel very strongly, believing, as we do, that unless it is possible to fix and hold the attention of the people, aviation must remain nothing but the sport of the few and its development be therefore retarded in no small degree in this country. The daily Press has done much to assist in concentrating public attention on the doings of those who are devoting themselves to flight. Columns of space have been filled with the record of their doings. But now that there is no longer anything wonderful in even a comparative novice making a long cross-country flight, even the Press interest is evaporating in sympathy with what it knows to be the taste of its readers. Take for instance this latest flight of Mr. Curtiss. Had he or any other flying man flown 150 miles across country even a year ago, pages would have been given to the fullest of descriptive reports, and all the dailies would have vied with each other for days beforehand with telegraphic accounts of the preparations for the epoch-making event, portraits of the aviator and his machine, and of his wife and all his relations. Now, these straight-away flights having been relegated to the level of the everyday occurrence, one leading London daily dismisses it in an eight line paragraph; and with hardly an exception no daily paper thinks it worth while to devote even half a column to such an ordinary event. We do not want it to be thought that we are complaining of this. The fault is not with the newspapers, but with the public for whom they cater, and which has lost interest in these big prize-winning flights simply because they are not having any novelty of condition imported into them.

It is those who are deeply concerned in the future of the science and the industry whose obvious duty and policy it should be to devise the ways and means of infusing this interest which is becoming lacking in flight as a popular spectacle. For the technical development of flying the public does not care the proverbial row of pins—though it is of very vital import that this side of the prize-giving problem should be minutely studied by every prospective donor. The most wonderful discovery or the most marvellous flying achievement will not stir the masses deeply unless it can be made spectacular and of a real sporting interest. Therefore it behoves donors of future prizes to bear in mind this aspect also, if their patronage is to bring forth full fruit in the way of bringing Great Britain to the forefront in the art of airmanship and in the industry of aeroplane manufacture. Future feats should, indeed, lend themselves to effective stage management as well as being epoch-making on sound technical grounds. A couple of weeks ago we indicated one possible type of contest that would seemingly fulfil these dual requirements in the immediate future, and last week we referred to another interesting suggestion that had been put forward.

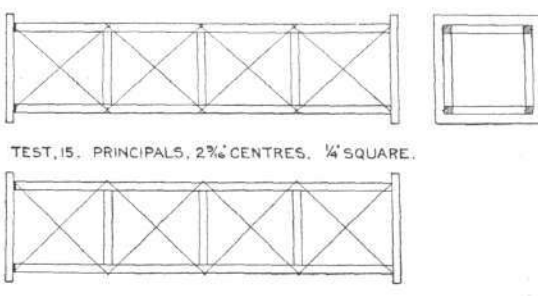
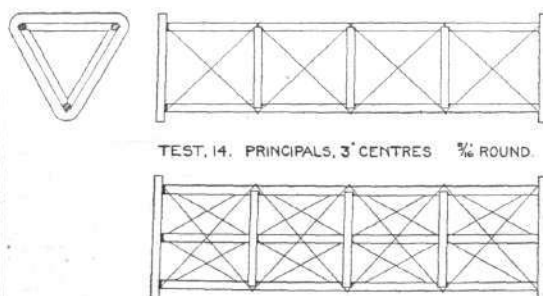
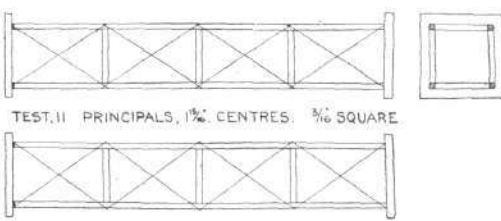
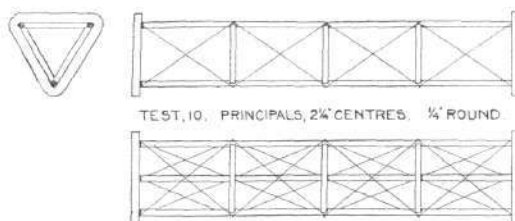
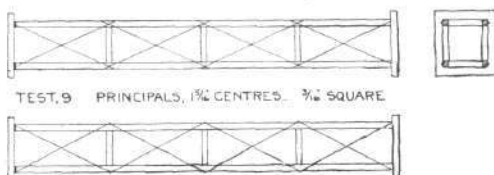
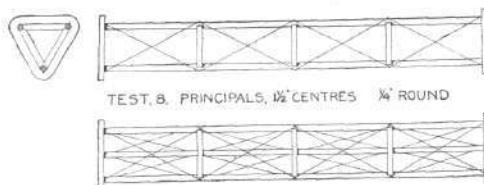
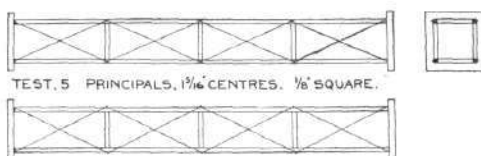
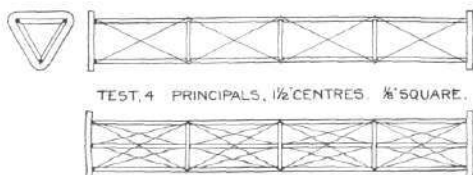
SCIENTIFIC MODEL CONSTRUCTION.

By G. TILGHMAM RICHARDS.

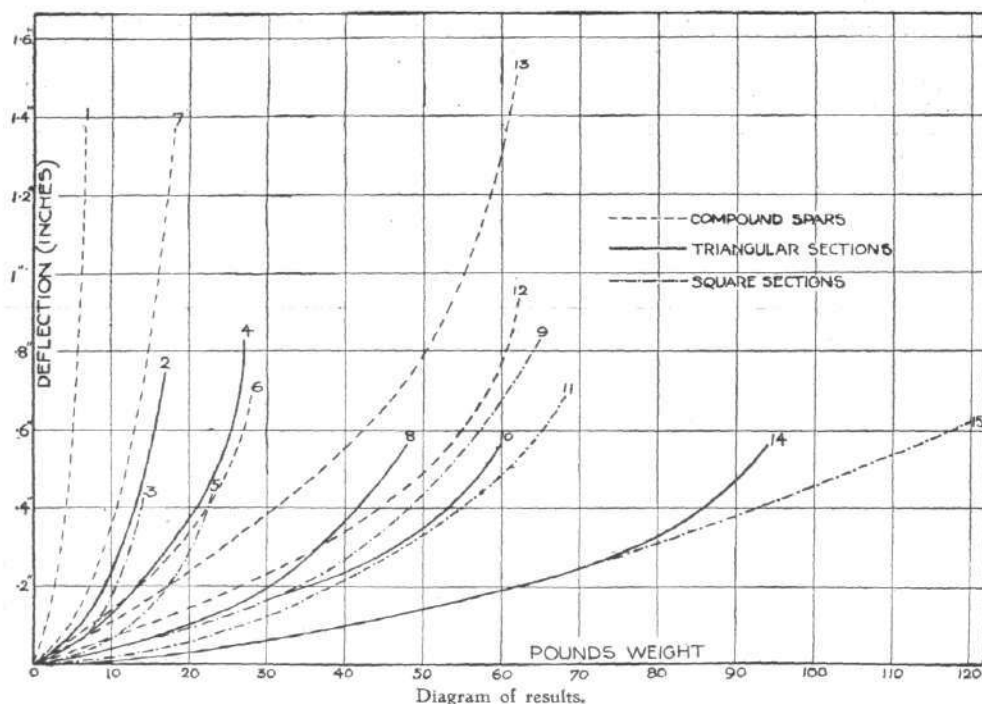
THE following abstract of a paper read before the Manchester Aero Club should be of considerable interest to those of our readers who are engaged in the construction of models. It represents an attempt to deal with model-making on scientific constructional lines, and although the author has confined his practical experiments to the testing of lattice girder frames, the frame members are, as he points out, usually the heaviest parts of the machine, and therefore those that are most likely to introduce a factor of overloading.

I wish to touch very briefly on the general aspects of model construction under the following headings:—1, Making models, workmanship, the uses of models; 2, weight of models; 3, flying models by hand, and the uses of a mechanical starting device; 4, the slow speed of models, and the resultant departures from full-

sized practice necessitated thereby; 5, the lateral turning point in relation to the centre of gravity, and the application of the pendulum system with the dihedral angle; 6, models as natural gliders after exhaustion of propelling mechanism; 7, methods of control; 8, the testing of model sections to destruction.



Sections tested.



models generally have an exaggerated camber. Other differences from full-size machine are also necessary, such as an increased size of tail and controlling planes in relation to the main planes.

5. Another point raised by the slow speeds of models is the relationship between the lateral centre of turning and the centre of gravity. I hold that the coincidence of these is very necessary at slow speeds, and therefore I think the pendulum system very bad. If we examine the successful aerofoils using the pendulum system, we

1. There is wide divergence of opinion as to the utility of models, and as to whether they deserve serious consideration in relation to the use of full-size machines and gliders, but I think that we shall find, especially as a fuller knowledge of atmospheric vagaries becomes common, that a great deal of very useful information can be derived from flying even small elastic-driven aerofoils, if conducted on scientific lines. A new road to a knowledge of the wind, its eddies and currents, is opened up by the flying of models, and the experimenter soon learns the "feel" of the air, and what it may reasonably be expected to be doing at a fair distance away if its direction and the configuration of the ground are noted.

Models should always be well made but not elaborate; high finish is not only unnecessary but a waste of time, for a model must essentially be a progressive mechanism to be useful, and hence will be subject to much alteration.

2. Simplicity is the secret of good design; learn first how to make a light, simple, clean-cut flyer. The weight of models having any pretensions to power is usually excessive, owing, it would seem, to ignorance on the part of the constructor as to what degree of strength and stability may be obtained from a certain weight of material. The object of the tests to be described under sec. 8 is to derive data which will be of use in the construction of the bodies and girders. Wings are generally made sufficiently light, but the bodies are generally far too heavy.

3. I am not in favour of the present haphazard method of launching models by hand, for if it is necessary to carefully determine the angle of incidence of a full-sized machine when running over the ground before commencing to rise, on what grounds are we to expect a model to behave itself when launched at all sorts of speeds, angles, and direction in relation to the wind? Surely our models should be as scientifically launched as a large machine, and I strongly advocate the use of starting boards, with some elastic attachment in the form of a cross-bow, which can be adjusted for angle and force. A trigger should be used to release the cross-bow, and a trip mechanism introduced to release the propeller just before the aerofoil leaves the starting board.

4. Models are essentially comparatively slow flyers, and for that reason we find steady flying

shall find that they are confined to the Grade and Santos Dumont monoplanes, and one type of Blériot monoplane, all of which are machines of very high speed, and have been designed with a large dihedral angle. In these machines, the fall being so rapid and the supporting area so small, the dihedral angle has a far higher stabilising ratio in relationship to the effects of side-gusts than is usual. The pendulum system helps to rapidly pull down the dihedral angle, and at the same time does not materially interfere with the side-action of the wind. With models which are slow flyers these conditions do not apply.

Let us examine the action of an exaggerated pendulum on a slow flyer. We will suppose that a side gust catches it, throwing it over laterally about the centre of the pendulum. To right itself the machine must either drift laterally until the pendulum regains the vertical position, or it must be steered into the wind. In carrying out this latter manoeuvre we shall find that the drift still continues, and until the machine is actually nose into the wind it is in a poor

TABULATED RESULTS OF THE TESTS.

No. of Test.	Description.	Centres of Principals.		Size of Principals.	Kind of Wood Used.	Weight per Running ft. in ozs.	Collapsing Point in lbs.	Deflection at Collapsing Point in.	Breaking Strain		Deflection Weight per ft.	Efficiency.
		in.	in.						A.	B.		
1	4 pieces bound together	1 1/2	1 1/2	square	Box	2	6 1/2	1 1/2	32	56	6.88	4.75
2	Triangular girder	1 1/2	1 1/2	"	"	3	17	1 1/2	56	52	5	22.5
3	Square girder	1 1/2	1 1/2	"	"	355	14	1 1/2	39	61	23	32.2
4	Triangular girder	1 1/2	1 1/2	"	"	31	27	1 1/2	87	32	62	33.1
5	Square girder	1 1/2	1 1/2	"	"	375	23	1 1/2	61	51	17	52.6
6	3 pieces bound together	1 1/2	1 1/2	round	Alder	65	28	1 1/2	43	61	0.4	41.7
7	"	1 1/2	1 1/2	square	S. walnut	5	18	1 1/2	36	22	75	13.2
8	Triangular girder	1 1/2	1 1/2	round	Alder	8	48	1 1/2	60		705	85
9	Square girder	1 1/2	1 1/2	square	S. walnut	845	65	1 1/2	77		96	80
10	Triangular girder	2 1/2	2 1/2	round	Alder	1	60	1 1/2	60		562	107
11	Square girder	1 1/2	1 1/2	square	S. walnut	1	68	1 1/2	68		687	99
12	3 pieces bound together	1 1/2	1 1/2	round	Alder	1	62	1 1/2	62		937	66
13	"	1 1/2	1 1/2	square	White oak	1.1	62	1 1/2	56	51	37	41.5
14	Triangular girder	3	3	round	Alder	1.9	94	1 1/2	50		295	169
15	Square girder	2 1/2	2 1/2	square	White oak	2	120	1 1/2	60		312	192

position to withstand the pressure, for it can only be brought up into the wind by swinging round the edge of a cone, having the mass of the pendulum in the apex. From this we see that at slow speeds it is very necessary that the lateral turning point should be coincident with the centre of gravity.

6. Models should always be natural gliders. It is both bad design and bad flying for a model to helplessly flutter to the ground, sometimes tail first, sometimes head first, directly the propeller stops. This is a point on which too much insistence cannot be laid. The most successful way to obtain the desired effect is to make the model glide naturally from any position by so arranging the planes and weight that it has a natural forward tilt in the air, and then to incline the axis of the propeller in relation to the natural angle of incidence of the planes, so that the propeller, in addition to drawing the aerofoil through the air, counteracts the forward weight, and either gives the machine a slight upward rise or maintains it in horizontal flight.

7. The control of models is a vast subject, and can only be briefly touched upon here. Much must be left to individual experience, but flyers should strive to alter the controlling planes only for wind, never in order to maintain longitudinal stability. If your model is correctly designed it should fly properly in still air—that is, inside a building—with all controlling planes perfectly horizontal to the ground. If it does not do so it is not correctly made. All controlling planes act against the air stream set up by the propeller, and therefore their use curtails the length of flight obtainable.

There is also a vast field for the exercise of ingenuity in the control of petrol-driven models, and I would suggest the use of a fine

thread worm on the back end of the crank-shaft, further reduced to revolve thin sheet formed cams, which in turn control the rudder, throttle, and spark. A petrol-driven model should be so controlled as to fly a certain distance and return, or to fly over a stated rectilinear course and have the engine stopped after so many minutes.

Fifteen sections have been tested, all 12 ins. long, the girder sections having struts of the same size as the principals, spaced uniformly 3 ins. apart. These struts are held by steel nails, the heads of which are left projecting, and the diagonal steel wires of .012 in. dia. (30s B.W.G.) are wound spirally round the section, with a half turn round each nail head.

An examination of the curves in the diagram or results will give some very interesting data. From them we see that in the compound spars the square sections (1, 7, 13) give very uniform curves with great deflection, but the compound spars of triple round wood (6, 12), although having much the same strength, have only 40 per cent. and 62 per cent. of the deflection of 7 and 13 respectively. In the triangular girder sections (2, 4, 8, 10, 14), we find that the curves remain very uniform, the deflection diminishing as the sections get larger, while in the square sections (3, 5, 9, 11, 15), the deflection shows a tendency to become greater in the larger sections.

A comparison of 2 with 3, and 4 with 5, shows that the triangular sections give 44 per cent. and 42 per cent. greater deflection respectively with approximately same strength.

From the tabulated results of the tests we see that, on the whole, the square sections give a higher efficiency than the triangular sections.

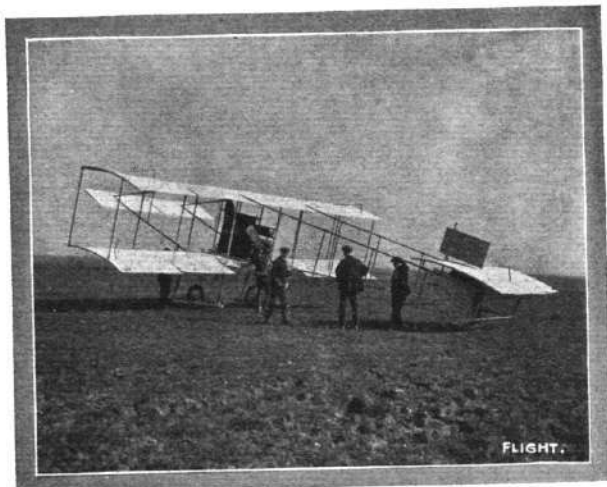
A NEW SHORT BIPLANE, "No. 27."

A NEW biplane has just been constructed by Messrs. Short Bros., and flown by Mr. C. S. Grace, who bids fair to become one of our leading, if not actually the most expert aviator in Great Britain. The biplane is, as a mere glance at our accompanying photograph is sufficient to show, an entire departure in design so far as Short Bros.' previous practice is concerned. It embodies features, however, that are at any rate superficially suggestive of the Sommer and Henry Farman machines, and when we speak of these designs it is, perhaps, only fair to give credit to the pioneer house of Voisin, on whose original planes they were grafted.

It should be quite unnecessary to say concerning any work executed by Short Bros., however, that the design and construction are in every detail as original as if they bore no likeness to anything that anyone else had done. The machine, as the illustration shows, is a biplane that has a monoplane tail. Above and below the tail plane are the rudder planes, and in front of the main planes is a monoplane elevator. The trailing edges of both main planes, from the extremity to the next strut, are hinged so as to serve as balancing flaps. The machine is driven by an 8-cyl. E.N.V., mounted on a special framework. To the design of this framework the greatest possible care and attention is devoted, for the pilot sits in front of the engine, and in the event of a catastrophe it is most important that he should be rendered as little liable as possible to have it break away and fall on top of him. After a series of very successful flights, a mishap occurred that would have resulted in this very calamity, had not the structure behaved in the manner that was intended.

It will be observed from the photograph that the position of the machine at rest is such as to give a very

considerable angle of incidence to the main planes. The tail plane is so adjusted, however, that it lifts when the slip stream of the propeller is coupled with a very low velocity over the ground, and consequently when the machine has advanced only a few yards it assumes its flying position automatically, and is very quickly



Short Biplane, "No. 27."

in the air. The attitude of the main planes in flight is such as to give an extraordinarily small angle of incidence—this, together with the remarkable speediness of the machine (about 45 miles an hour) being the outstanding feature of this latest important Short development.

Aviators Wanted for Canada.

OUR Canadian cousins have been very much attracted by the doings of the prominent aviators, and are anxious to see some real flying. For the purpose of arranging flying exhibitions in connection with the big summer fairs held in important towns in the

Dominion, the International Aviation Association has been formed at Montreal. They are now arranging contracts with various flying men, and particularly want to get into touch with British aviators who would care to go over for the summer. We shall be pleased to put British aviators in touch with the organisers of these meetings.

BOURNEMOUTH INTERNATIONAL AVIATION MEETING (JULY 11TH TO 16TH).

Organised by the Bournemouth Centenary Fetes Committee, under the Rules of the Federation Aeronautique Internationale, represented by the Royal Aero Club of the United Kingdom.

PROVISIONAL PROGRAMME AND REGULATIONS.

Longest Flight Prize.—First prize, £300; second, £150; third, £60; fourth, £40.

In addition to the above prizes, the sum of £100 will be given to the monoplane which covers the greatest distance in the course of the competition.

The above prizes will be awarded, in order, to the competitors who shall have completed the greatest number of circuits without touching the ground. This contest is subject to the following rules:—

RULE I.—The order of starting shall be by lot. Any competitor not starting within fifteen minutes of the time appointed shall lose his turn, and shall then only be allowed to start at the discretion of the Clerks of the Course.

RULE II.—This prize shall be competed for on the following days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, July 11th, 12th, 13th, 14th, 15th, and 16th, during flying hours and at such times during the day as may be appointed by the Clerks of the Course.

RULE III.—It shall be an obligation on all competitors taking part in this event to cross the starting-line in flight once at least on each of the above-mentioned days, during flying hours, notwithstanding their previous performances; any competitor failing to comply with this condition shall be liable to disqualification. It shall nevertheless be within the powers of the Clerks of the Course to waive this condition, should the competitor's machine have met with a mishap or delay in transit, or any mishap, whilst taking part in any event at the Meeting, which, in their opinion, shall render compliance with this condition impossible.

RULE IV.—Every aviator shall give full particulars of the machine he is using, and shall notify any material changes thereto to the Clerks of the Course.

RULE V.—The following minimum distances must be covered by competitors in order to qualify for the above prizes:—For the first prize, 50 miles; and for the second, 30 miles; no minimum for third and fourth prizes.

Speed Prize.—(Over five circuits of the course, 8 miles 1,620 yards.) First prize, £1,000; second, £400; third, £100; fourth, £50.

In addition to the above prizes, a prize of £100 will be given for the fastest lap covered by any competitor in the course of this competition.

This contest is subject to the following rules:—

RULE I.—The order of starting shall be by lot. Any competitor not starting within 15 minutes of the time appointed shall lose his turn, and shall then only be allowed to start at the discretion of the Clerks of the Course.

RULE II.—This prize may be competed for on the following days:—Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, July 11th, 12th, 13th, 14th, 15th and 16th, during flying hours and at such times during the day as may be appointed by the Clerks of the Course.

RULE III.—Every aviator shall give full particulars of the machine he is using and shall notify any material changes thereto to the Clerks of the Course.

Greatest Altitude Prize.—First prize, £1,000; second, £400; third, £100; fourth, £50.

In addition to the above, on each of the four days on which this event is set down for competition, a prize of £25 will be given to the competitor who shall attain the greatest height during the day.

The above prizes will be awarded, in order, to the aviators who shall attain the greatest height in the course of the competition. These prizes are subject to the following minimum altitudes being attained: For the first prize, 500 ft.; for the second and other prizes, 300 ft. These prizes may be competed for on the following days: Monday, Wednesday, Friday, Saturday, July 11th, 13th, 15th and 16th. The methods of calculating altitudes attained will be decided by the Clerks of the Course, whose decision in this respect shall be final and without appeal.

Weight-Carrying Prize.—First prize, £350; second, £150; third, £50.

These prizes will be awarded, in order, to the competitors carrying the greatest weight on their machines over one complete circuit of the course. For purposes of this competition, the weight of the pilot and his passenger or passengers will be added together and the prizes awarded in relation to the greatest total weight carried. In the event of an equal weight being carried by two competitors, the prize will be awarded to the competitor completing the course in the

shortest time. It is a condition of this competition that at least one passenger, of not less than 18 years of age, be carried: competitors are at liberty, however, to add any additional amount of weight they may desire in the form of dead-weight, such dead-weight to be reckoned in the total amount carried. The dead-weight to be carried will be supplied by the Clerks of the Course and shall be affixed by the competitor and the weight verified by the Clerks of the Course at the completion of the flight. The competitor shall be solely responsible for any mishap which may occur to his passenger in the course of this competition. This competition will take place on Wednesday and Thursday, July 13th and 14th.

The following minimum weights must be carried by competitors in order to qualify for the above prizes:—

First prize: 25 stone (pilot, passenger and dead-weight, if necessary).

Second prize: 22 stone (pilot, passenger and dead-weight, if necessary).

Starting Prize.—First prize, £250; second, £50; third, £25; fourth, £25.

These prizes will be awarded, in order, to the competitors who shall succeed in rising from the ground in the shortest distance. The number of attempts allowed in this competition is not specified, but the same number of attempts shall be allowed to all competitors. This competition shall take place on Tuesday and Thursday, July 12th and 14th, during such hours as may be appointed by the Clerks of the Course. Only such machines as are entirely independent of starting devices or accessories are eligible for the competition.

Alighting Prize.—First prize, £250; second, £50; third, £25; fourth, £25.

The above prizes shall be awarded, in order, to the competitors who shall obtain the highest aggregate of marks in the course of this competition. Competitors will have to cross a line in flight designated to them by the Clerks of the Course, but with their engine entirely stopped (*vol plane*), and on passing this line they are at liberty to come to the ground at any spot before or on arriving at the target. The dimensions of the target will be decided by the Clerks of the Course. This prize shall be competed for on the following days: Tuesday and Thursday, July 12th and 14th, at the hours appointed by the Clerks of the Course. The number of the attempts allowed in this competition is not specified, but the same number of attempts shall be allowed to all competitors.

Competitors' Assistants' Prize.—First prize, £60; second, £40.

The above prizes will be awarded on the conclusion of the meeting for distribution among the assistants of the two competitors who shall in the course of the various events on the programme have covered the greatest number of complete circuits of the course.

Slowest Circuit Prize.—One prize of £100.

This prize shall be awarded to the competitor who shall complete one lap of the course in the slowest time. This prize may be competed for on any day of the meeting, at such hours as may be appointed. Competitors must give notice to the Clerks of the Course of their intention of competing for this event, and the Clerks of the Course shall remain sole Judges as to whether the course covered by the competitor in flight is the shortest distance round the course, having regard to the condition of wind and atmosphere obtaining at the time such attempt is made.

General Merit Prize.—First prize, £500; second, £300; third, £150; fourth, £50.

These four prizes will be awarded, in order, on the conclusion of the meeting to the competitors who, in the opinion of the Judges of the meeting, shall have performed most meritoriously during the meeting.

Sea Flight.—Competitors to make one complete circuit of the aviation course, fly round a mark in the vicinity of the Needles Lighthouse, and return to the aviation ground, crossing the finishing line before alighting. Approximate distance, 21 miles, of which 18 miles are over the water.

First prize, £800; second, £400; third, £100. For best time.

In addition to the above, a prize of £100 will be given to the competitor who shall make the greatest number of completed flights (in the case of two or more competitors making an equal number of flights, this sum to be divided equally between them), and a further prize of £200 will be divided equally between all those competitors who shall have made one completed flight without winning any of

the four preceding prizes. In the event of three or fewer competitors completing the course, these additional prizes will not be given; in no case can one competitor's proportion of the £200 exceed the value of the third prize, and the surplus shall then be divided in equal proportions between the other prize-winners, with the exception of the winner of the first prize, who shall not participate in this supplementary distribution.

In addition to the foregoing, special prizes for British aviators piloting all-British machines will be given, particulars of which will be published later.

For all further information, application should be made to V. Ker-Seymer, Bournemouth International Aviation Meeting Office, 166, Piccadilly, London, W.

General Regulations.

ART. 1.—All the events of the programme are open to competitors of any nationality, and may be competed for by any aviator duly qualified under the rules of the F.A.I., and holding a Pilot Aviator's Certificate issued by one of the clubs belonging to that Federation.

ART. 2.—The various events on the programme are open to all types of machines heavier than air. Any machine, without distinction of power, form, method of starting, or of propulsion, is admitted under these rules.

ART. 3.—Only one prize in any given event can be won by a competitor. In the case of there being only one competitor, the other prizes will return to the Centenary Fêtes Committee; in all cases where the prizes offered exceed the number of competitors, such excess of prizes shall be treated in the same manner. In the various events in which a minimum distance, weight or height is necessary, only 50 per cent. of the value of the advertised prizes will be paid, should these minimum distances, weights or heights not be attained.

ART. 4.—No machine taking part in any of the events on this programme may be removed from the ground before the last day of the meeting, except by special permission in writing from two of the Clerks of the Course.

ART. 5.—All machines must display the number allotted to them by the Clerks of the Course, and this number, in figures not less than 2 ft. in height, shall be affixed to the machine in such a manner as may be indicated to the competitor by the Clerks of the Course.

ART. 6.—No machine may display any form of advertisement beyond the name of the constructor, the owner, or the pilot.

ART. 7.—The sheds for the housing of the machines will be supplied to the competitors free of cost by the organisers of the meeting, but the organisers will not recognise any responsibility which such concession may entail. Competitors are responsible for the proper guarding of the sheds allotted to them, as also for any damage caused to their machines by themselves or their servants or third party; their special attention is drawn to the danger of damage by fire, storm, tempest, &c. Only one shed will be granted to each competitor failing a special arrangement made with the management not less than fourteen days prior to the commencement of the meeting.

ART. 8.—The organisers of the meeting have the right to limit the number of entries, and also to refuse any entry without assigning any reason. They retain, further, the right to exact a certificate of previous performances before accepting an entry.

ART. 9.—In accordance with the conditions on the back of the entry-form the organisers decline all responsibility for any accident which may occur, owing to third party or otherwise, to any competitor, to his machine or to his passengers, or for any accident or damage which such competitor, or his machine, passengers or servants may cause to third party.

ART. 10.—The responsibility for the proper conduct of the meeting, as also for the carrying out of these rules, is vested in the Clerks of the Course, to whom all protests and complaints must in the first instance be made; every protest shall be in writing, and must be signed by a competitor engaged in the competition, or by his authorised agent, and must be lodged within twelve hours with the Secretary of the meeting, together with the sum of £5. If the protest be decided against the depositor, his deposit shall be forfeited to the organisers of the meeting, unless the Clerks of the Course who heard the case decide that there was good and reasonable ground for the protest or the appeal.

The Grawert Torpedo Aeroplane.

LAST week we referred to the trials made with a new aeroplane designed by Herr Grawert for military purposes. The German War Office were so impressed with the initial tests that they decided to have it transferred from Johannisthal to the military aviation ground at Tegel. The inventor resolved to take it from one place to the other under its own power, and the journey across Berlin was successfully made on Wednesday of last week.

ART 11.—All competitors shall be deemed to have made themselves acquainted with these rules and regulations, as also with those governing the various events of the meeting, and to have thereby undertaken to abide by the same.

Special Regulations.

ART. 12.—The following flags will be flown from the official mast on the aviation ground:—

A Black Flag denoting "No flying at present."

A White Flag denoting "Flying will probably take place shortly."

A Red Flag denoting "Flights are now taking place."

ART. 13.—No event shall be competed for except during such hours as the Red Flag shall be flying from the official signal mast, which shall be the definition of flying hours mentioned in the subsidiary regulations governing the various events of the programme.

ART. 14.—No competitor shall be allowed to start in any of the events until permission shall have been given to him by a Clerk of the Course, whose duty it shall be to see that the official timekeepers are duly advised of such start, and all competitors shall give notice to the Clerks of the Course before noon on the morning of the day on which any given event is set down for competition of their intention to compete in any such event.

ART. 15.—All distances and all times shall be reckoned from the moment the competitor crosses the starting-line in flight; and it shall be the duty of the Clerks of the Course to put up a signal at once should such start not be adjudged a valid one.

ART. 16.—The course is marked out by four mark towers, and all competitors must pass outside such towers when competing for any of the events of this programme; the mark towers shall be deemed to have been passed when any portion of the machine shall have crossed the angle line in flight. For purposes of recording the distance traversed in any event, such distance shall be reckoned up to the last mark tower properly passed by the competitor, and in all events where speed is the deciding factor the time shall only be reckoned from the passing of the starting and finishing line in flight, at least one complete circuit of the course being thus necessary, and only completed circuits being reckoned in all speed contests.

ART. 17.—Any competitor touching any part of the mark tower in the course of any event shall not be held to have passed it and must return and pass the tower in the proper manner (as provided in the preceding article), failing which, his flight shall be held to have ended at the last mark tower properly passed.

ART. 18.—In all events machines must travel in the opposite direction to that of the hands of a clock (*i.e.*, leaving the mark towers on their left hand), but it shall be within the power of the Clerks of the Course to authorise flights to be made in the reverse direction, provided that a note be made of the alteration in the official record book. Any competitor crossing the starting line in the reverse direction without such permission is liable to suspension during the remainder of the meeting.

ART. 19.—A competitor shall only pass another competitor on the outside (*i.e.*, to the right of the competitor to be passed), and on no consideration whatsoever shall the faster travelling machine be allowed to pass on the inside. A competitor shall further be at liberty to pass either above or below another machine, but in every case a space of at least 75 ft. shall be left between the two machines; the Clerks of the Course are sole judges as to whether this condition has been observed.

ART. 20.—A record book will be kept in the timekeeper's lodge under the care of the Clerk of the Course specially designated for this purpose, and it shall be the duty of such official to record therein every properly-made start by any competitor for any event in the programme throughout the week.

ART. 21.—The Clerks of the Course are empowered to affix to any competing machine any device they may deem advisable for ascertaining whether the machine to which such device is affixed shall have touched the ground in its journey round the course.

ART. 22.—The official hours of the meeting are from 11 a.m. to sunset, and events may be competed for, subject to Art. 13, at any time within these limits, provided, however, that no competitor starts in any event after 7 p.m.; it shall be within the discretion of the Clerks of the Course to prolong these hours for various competitions, but for purposes of records in long distance, height, and speed events all flights shall be held to be officially terminated at the hour of sunset, as recorded by the Greenwich Observatory.

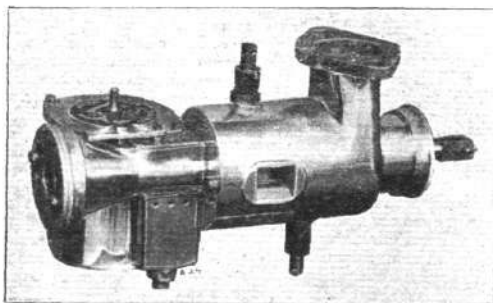
Fabre Hydro-Aeroplane.

ON the 19th ult., M. Fabre conducted some experiments with his hydro-aeroplane over Mede Bay, close to Martigues, and they were watched by M. Louis Paulhan. After attaining a speed of 55 kiloms. an hour, the machine rose from the water to a height of 2 metres, and continued flying for about 500 metres. It then suddenly dived at a sharp angle, and the sudden shock of landing on the top of the water damaged one of the wings and one of the floats.

SOME MORE FLIGHT ACCESSORIES.

CARBURETTORS.

Trier and Martin.—The Trier and Martin carburettor, as constructed for aeroplane work, is made of aluminium, but is otherwise of the same design as their automobile model. It is of the multiple-jet type, having three vertical jets that are uncovered in sequence as the throttle-valve is opened.



"Flight" Copyright.

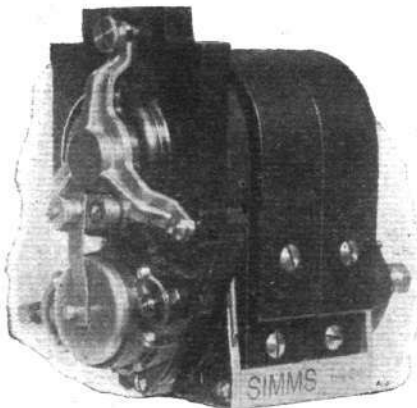
The Trier and Martin carburettor, specially constructed for aero engines, is of the multiple-jet type, and is made of aluminium for lightness.

Zenith.—The concession for the Zenith carburettor for aeroplane engines has been obtained by Harris and Samuels (Eyquem's Patents). This carburettor is of the spray-jet float-feed type, and has been made in aluminium in order to save weight. It has an extremely interesting principle of action, which formed the subject of an "Auto Technology" article in the *Auto.* of January 15th this year.

FABRICS.

Continental.—Continental fabric is made of rubber-proofed Egyptian cotton, the weights ranging from 120 grammes per sq. metre, which is suitable for gliders, to 330 grammes per sq. metre, which is suitable for airships.

Dunlop.—The Dunlop rubber-proofed fabrics are made from unbleached Irish linen, and range in weight from 110 grammes per sq. metre to 178 grammes per sq. metre. They have been subjected to tests carried out by the Manchester Chamber of Commerce.

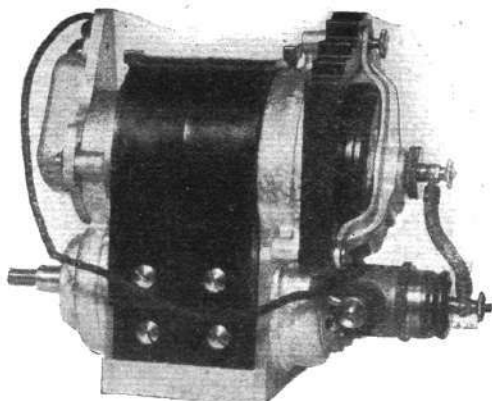


"Flight" Copyright.

The above photograph shows the Simms magneto—S4 type—specially constructed for use with aero engines.

Hart's Fabric.—A special feature of this material is that no rubber is used in the proofing. The makers claim that the fabrics are quite waterproof as well as being air and gas tight to a high degree. The weights range from 1½ ozs. per sq. yard. This fabric

has passed Government tests, and we understand that it is being used by the Admiralty and War Office.



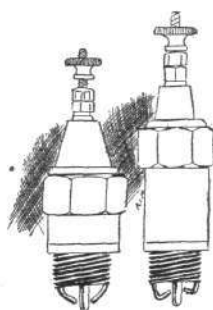
"Flight" Copyright.

The Bosch magneto, for use with eight-cylinder aero engines. It is of the rotating-sleeve type, running at the same speed as the engine.

Hutchinson.—The Hutchinson aero cloths are rubber proofed, and vary in weight from 81 grammes per sq. metre to 318 grammes per sq. metre.

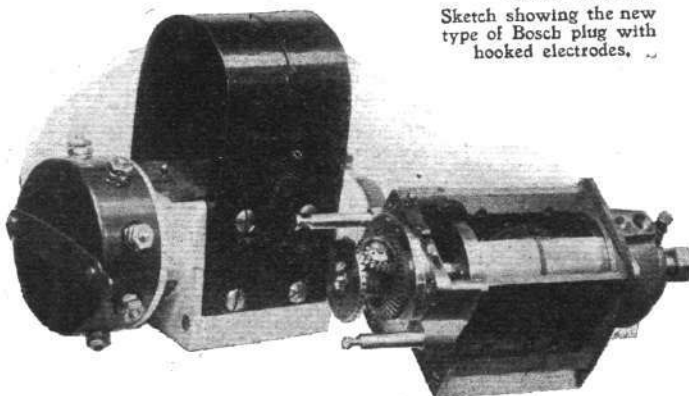
North British Rubber.—The North British Rubber Co's rubber-proofed fabrics range in weight from 100 grammes per sq. metre to 190 grammes per sq. metre.

Vulcanized Silk.—M'Lean and Co. make a speciality of vulcanized silk, which is a material characterised by its elasticity and imperviousness to oil. The weights range from 2½ ozs. per sq. yard, and can be obtained in qualities having a bursting strain up to 56 lbs. per sq. in.



"Flight" Copyright.

Sketch showing the new type of Bosch plug with hooked electrodes.



Flight Copyright.

Two views of the Gibaud magneto for aeroplane engines. The view on the right shows the magneto partly dismantled, exposing to view the bevel gear of the distributor, which is one of the features of this magneto.

MAGNETOS.

Bosch.—Two specially light magnetos for 6 and 8-cyl. flight engines have been designed by the Bosch Magneto Co. The magneto for 6-cyl. engines runs at three-fourths the engine speed, while that

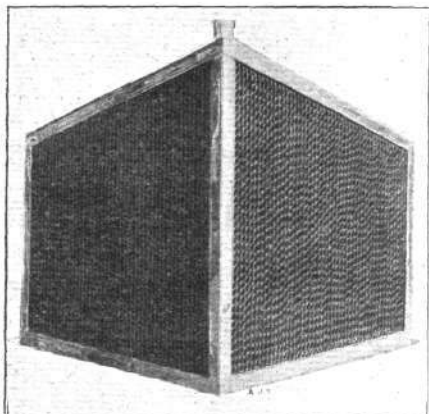
for 8-cyl. engines, which is of the rotating sleeve type, runs at the same speed as the engine.

Gibaud.—The Gibaud magnetos made by the Mossley Hill Motor Car Works, are characterised by the fitting of the high-tension distributor on the end of the armature-spindle instead of on a secondary gear-driven spindle mounted above the armature. The necessary reduction in speed is obtained by introducing an ingenious arrangement of bevels for driving the distributor brush.

Simms.—The Simms Magneto Co. construct a 4-cyl. magneto that has been made specially for aeroplane work, and is particularly light. Magnalium is employed wherever possible in the construction of the Simms magnetos that are intended for this work.

RADIATORS.

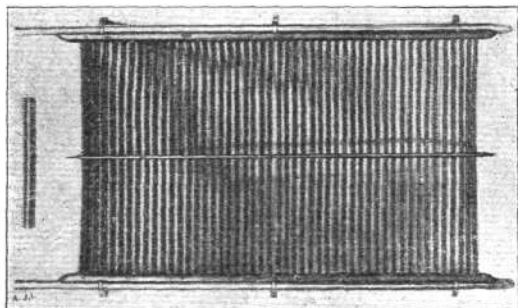
Lamplough.—Lamplough radiators (Lamplough and Sons) are of the tubular type, and are made of thin flat brass tubes. Between each pair of tubes a strip of corrugated copper is inserted to increase the cooling surface. The weight of a radiator capable of cooling a 60-h.p. engine is about 40 lbs.



"Flight" Copyright.

The above radiator is constructed specially for aero work by Lamplough and Sons. It consists of thin, flat brass tubes, with corrugated strips of copper between the tubes. These radiators are made in various shapes, according to requirements.

Spiral Tube.—The characteristic feature of the radiator constructed by the Spiral Tube and Components Co. is the use of a continuous spiral fin of corrugated copper .004 of an inch thick,



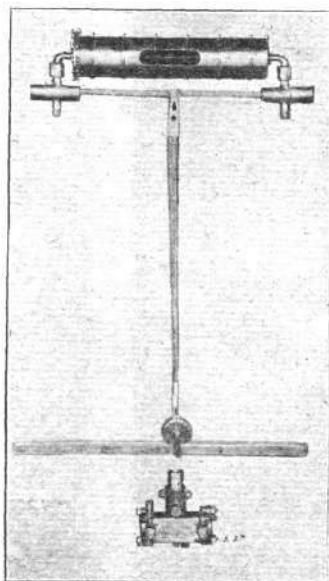
"Flight" Copyright.

The spiral tube radiator constructed by the Spiral Tube and Components Co., consists of a number of thin copper tubes, on the outside of which is spirally wound a thin strip of corrugated copper. The copper strip is soldered to the tube, and serves to very greatly increase the radiating surface,

wound from one end of the tube to the other. The thickness of the tubes is .008 of an inch. The copper spiral is soldered to the tube in order to increase the conductivity of the contact. The weight of water carried in the $\frac{1}{8}$ tube is about $\frac{1}{16}$ to $\frac{1}{4}$ lb. per horse-power—not including the water in the headers. The total weight of these radiators is about 1 lb. per horse-power.

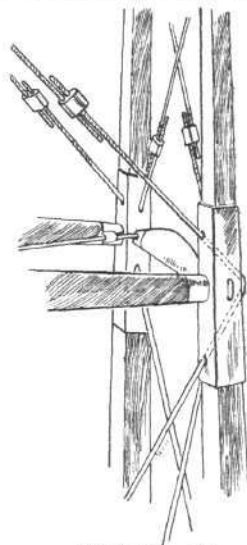
The above firm also manufactures flat tube and small round tube coolers.

Zimmermann.—The Zimmermann radiator (Motor Radiator Manufacturing Co.) is of the real honeycomb type, but is peculiar in having tubes of circular section. These tubes are made of brass



"Flight" Copyright.

The Blackburn automatic stability device, consisting of a pendulum, the swinging action of which operates balancing planes by means of compressed air. The compressor for supplying the latter is shown at the bottom of the illustration.



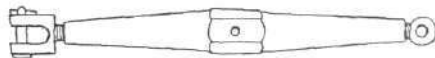
"Flight" Copyright.

The above sketch shows very clearly the patent wire tighteners of the Motor Accessories Co. The ends of the wires have right-handed threads, but one is double and the other is single, so that on turning the tightener the wires are drawn together as one travels a greater distance than the other.

1 mm. in thickness, and have expanded ends. The expanded ends cause a water space to be formed between the tubes when the tubes are piled together in honeycomb form. The water space is sealed on either face of the radiator by a special soldering composition, into which the tubes are dipped *en bloc*.

STABILITY DEVICES.

Blackburn.—The Blackburn stability device consists of a pendulum-controlled compressed air cylinder. The pendulum admits compressed air to the cylinder at one end or the other



"Flight" Copyright.

The latest wire-strainer introduced by W. Cochrane and Co. has a shackle at one end and an eye at the other. The shackle-pin being removable enables the strainer to be more easily attached to a lug.

according to the direction of cant of the machine, and the piston in the cylinder is suitably connected to the balancing planes, or other righting device, so as to restore equilibrium. The air for operating this mechanism is supplied by a small air-compressor designed to be direct driven from the crank-shaft of the main-engine. It is calculated to absorb about $\frac{1}{4}$ h.p.

Rutt.—The stability device introduced by A. Rutt embodies a gyroscope. The inventor does not yet wish to have the exact details made public.

WIRE TIGHTENERS.

Cochrane.—A very neat wire-tightener has been introduced by W. Cochrane and Co., having the usual eye at one end but a shackle at the other end. The shackle-pin can be removed, thus enabling the tightener to be readily attached to the lug.

Handley Page.—Handley Page, Ltd., manufacture wire-tighteners or strainers having specially strong and large eyes.

The above firm also supply the Fortway patent wire-tightener, and wire clamps of the Blériot type.

Harris and Samuels.—The above firm now supply Grace's wire-tighteners for use on aeroplanes. Also the standard types of wire-strainers and turn-buckles.

Motor Accessories Co.—Quite a new type of wire-tightener is being placed on the market by the Motor Accessories Co. Briefly, the feature of this device is that the screw-thread on the end of one wire is double and right-handed, whilst the thread on the end of the other wire is single and also right-handed. It will be seen, therefore, that on turning the tightener one wire will travel a greater distance than the other, thus drawing the wires together.

SOME NOTABLE TOWN-TO-TOWN AND CROSS-COUNTRY FLIGHTS.

Date.	Pilot.	Machine.	Between.	Distance.	Time.
1908.				kils. h. m. s.	
Oct. 30	H. Farman	H. Farman	Bouy to Rheims	27	0 17 0
Oct. 31	L. Blériot	Blériot XI	Toury to Artenay	14	0 11 0
1909.					
July 13	L. Blériot	Blériot	Mondésir to Chevilly	43	0 44 0
July 19	L. Paulhan	Voisin	Douai to Arras	21	— — —
July 25	L. Blériot	Blériot XI	Calais to Dover	38	0 34 0
July 27	O. Wright	Wright	Fort Myers to Alexandria	—	0 10 17
July 27	R. Sommer	H. Farman	Chalons to Vadenay	24	— — —
Aug. 2	R. Sommer	H. Farman	Chalons to Suippes	14	— — —
Aug. 6	Paulhan	Voisin	Malo-les-Bains to Bray Dunes	20	— — —
Aug. 11	Paulhan	Voisin	Malo-les-Bains to Bray Dunes	17	0 18 33
Sept. 8	S. F. Cody	Cody	Aldershot	64	1 8 0
Oct. 15	H. Latham	Antoinette	Chalons to Vitry-les-Reims?	—	— — —
Oct. 18	Comte de Lambert	Wright	Juvisy to Paris and back	58	— — —
Dec. 9	M. Farman	M. Farman	Buc to Chartres	70	0 53 0
Dec. 31	M. Farman	M. Farman	Chartres to Orleans	72	1 10 0
1910.					
Jan. 23	Van den Born	H. Farman	Bouy to Suippes and back	—	— — —
Mar. 2	Van den Born	H. Farman	Bouy to Mourmelon, Chalons and Reims	50	— — —
Mar. 28	H. Farman	H. Farman	Etampes to Angerville*	11	0 7 0
April 3	E. Dubonnet	Tellier	Juvisy to Orleans	109	2 50 0
April 17	H. Farman	H. Farman	Etampes to Orleans*	55	1 2 0
April 18	L. Paulhan	H. Farman	Orleans to Arcis-sur-Aube	109	2 3 0
April 19	L. Paulhan	H. Farman	Arcis-sur-Aube to Chalons	75	1 9 0
April 23	E. Dubonnet	Tellier	Juvisy to Bagatelle over Paris	30	0 25 0
April 23	Grahame-White	H. Farman	London to Rugby	133	2 5 0
April 23	Grahame-White	H. Farman	Rugby to Tamworth	46	0 50 0
April 24	Hon. C. S. Rolls	Wright	Nice and over the sea	51½	— — —
April 24	Van den Born	H. Farman	Nice to Monte Carlo and back over sea	—	— — —
April 27	Grahame-White	H. Farman	London to Roade	96	1 50 0
April 27	L. Paulhan	H. Farman	London to Lichfield	188	2 39 0
April 28	Grahame-White	H. Farman	Roade to Polesworth	76	— — —
April 28	L. Paulhan	H. Farman	Lichfield to Manchester	110	1 23 0
April 31	C. S. Grace	Short	Eastchurch to Sheerness and back	—	0 46 0
May 16	R. Sommer	Sommer	Douzy to Charleville	80	1 10 0
May 17	Illner	Etrich	W. Neustadt to Vienna and back	90	1 14 0
May 19	Comte Lambert	Wright	Vincennes to Gentilly*	—	— — —
May 19	Cheuret	H. Farman	Mourmelon to Chalons and back*	—	1 12 0
May 20	M. Hanriot	Hanriot	Bethency to Rheims	—	— — —
May 20	R. Sommer	Sommer	Douzy to Verdun	80	— — —
May 20	R. Sommer	Sommer	Verdun to Douzy	80	2 20 0
May 21	Jacques de Lesseps	Blériot	Calais to Dover	42	0 42 0
May 22	Maurice Farman	M. Farman	Buc to Etampes*	80	— — —
May 22	Lindpaintner	H. Farman	Mourmelon to Rheims	40	— — —
May 23	Frey	H. Farman	Johannisthal to Berlin and back	27	0 35 0
May 23	Martinet	H. Farman	Mourmelon to Tournan	147	1 28 0
May 24	Lindpaintner	H. Farman	Mourmelon to Rheims	45	— — —
May 24	Maurice Farman	M. Farman	Etampes to Toury	30	0 20 0
May 28	C. Grahame-White	H. Farman	Brooklands to Ranelagh	24	0 20 0
May 28	L. Paulhan	H. Farman	Verona to Solferino	36	0 30 0
May 28	Lieut. Fequent	H. Farman	Mourmelon to Valdenay	22	— — —
May 28	L. Blériot	Blériot	Toury to Etampes	30	— — —
May 28	A. Leblanc	Blériot	Etampes to Toury	30	— — —
May 29	G. Curtiss	Curtiss	Albany to New York	240†	2 54 0
May 30	A. Leblanc	Blériot	Toury to Chartres	45	— — —
May 31	A. Euler	—	Frankfort	115	1 19 0

* With a passenger.

† With two stops.

In the accompanying table is summarised the principal flights which have so far been made across country. It will be remembered that the first recorded cross-country flight was that of Mr. Henry Farman on October 30th, 1908, which was followed by M. Blériot's little excursion on the next day. Then nearly a year elapsed before M. L. Blériot again ventured across country, and his example was quickly followed by Paulhan and Sommer, while in America Orville Wright made a short trip. An extraordinary series of flights commenced at the beginning of last April with the trip of M. Dubonnet from Juvisy to Orleans, while just as we go to press we learn that on the last day of May, Herr Euler, on a biplane of his own construction, made a circular trip from Frankfort over Griesheim, Gross-Geran, Dornburg, Wallenstedten, Dornheim, Wolfskirchen, Goddelan and Eschollmbeken. The aviator landed safely in front of his shed after covering 115 kiloms. in 1 hr. 19 mins. at an altitude which varied between 150 and 200 metres.



Poster used for the Verona Aviation Meeting just concluded.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on Tuesday, May 31st, when there were present:—Mr. Roger W. Wallace, K.C., in the chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Col. J. E. Capper, C.B., R.E., Mr. John Dunville, Prof. A. K. Huntington, Mr. V. Ker-Seymer, Mr. J. T. C. Moore-Brabazon, Mr. C. F. Pollock, Mr. A. M. Singer, Mr. Stanley Spooner, and Harold E. Perrin, secretary.

New Members.—The following new members were elected:—

Capt. F. Bryant, R.A.	W. Lecoq McBride.
Fernand Maurice Charles.	Capt. William Peverell Marley.
William Coats-Hutton.	C. Vivian Moore.
Lieut.-Col. W. B. Davidson-Houston.	Lieut. Leslie N. Stephens, R.G.A.
Jersey de Knoop.	Alan J. Sykes, M.P.
Lady Garvagh.	Charles Tomkinson.

Aviator's Certificate.

The Committee at their meeting on Tuesday awarded their aviator's certificate to Mr. A. M. Singer.

Bournemouth Aviation Meeting.

The attention of members is drawn to the rules and regulations governing the International Aviation Meeting to be held at Bournemouth from the 11th to the 16th July, which appear in another part of FLIGHT. As the entries close on the 23rd inst. intending competitors should lose no time in obtaining their aviators' certificates in accordance with the conditions laid down by the Federation Aeronautique Internationale. A special office has been opened at 166, Piccadilly, where all information will be supplied.

Aviator's Certificates.

The Royal Aero Club of the United Kingdom will grant certificates in accordance with the rules of the Federation Aeronautique Internationale to aviators who have complied with the following rules:—

RULES.

1. Three separate flights must be made, each of 3 miles round a circular course without coming to the ground. These flights need not necessarily be made on the same day. On the completion of each flight the engine must be stopped in the air, and a landing effected within 150 yards of a given spot previously designated by the candidate to the Official Observers.
2. Each of the three trials must be vouched for by officials appointed by the Royal Aero Club, and a certificate obtained for each flight. All trials to be under the control of, and in places agreed to by, the Royal Aero Club.
3. Before being allowed to compete for certificates, candidates must, if called upon, satisfy the Committee of the Royal Aero Club of their ability to fly 500 yards, and of making a gliding descent with the engine stopped.
4. All attempts must be made between sunrise and sunset, and suitable previous notice must be given to the Secretary of the Royal Aero Club.
5. The Royal Aero Club declines all responsibility for any accidents, or any damage that may occur to the aviators, their machines, or to any third parties during or in connection with the qualifying tests of the candidate.
6. Candidates desirous of qualifying for certificates must make

application on a form provided for that purpose. Expenses incurred, if any, must be borne by the candidates.

7. The Committee of the Royal Aero Club will decide if the candidate has qualified for a certificate, but reserves the right to refuse the same or withdraw the same at any time without giving reasons.

8. Foreigners belonging to a country represented on the Federation Aeronautique Internationale can only receive a certificate from the Royal Aero Club after having obtained the consent of their national sporting authority, as approved by the Federation Aeronautique Internationale. A certificate may be granted to a foreigner whose country is not represented on the Federation Aeronautique Internationale.

9. The decision of the Committee of the Royal Aero Club in all matters connected with the trials is final and without appeal.

10. The Committee of the Royal Aero Club may in special cases waive any or all of the above rules, and grant certificates at its discretion.

Baron De Forest Prize.

Mr. S. F. Cody has sent in his entry to the Royal Aero Club for the prize of £4,000 offered by Baron De Forest.

"Daily Mail" Cross-Country Prize of £1,000.

The attention of members is drawn to the prize of £1,000 offered by the *Daily Mail*, rules of which are as under:—

1. The *Daily Mail* offers a prize of £1,000 to the aviator covering in a heavier-than-air machine the greatest total distance across country, either in England or France, officially recorded by either the French or English Aero Club, in the twelve months dating from the morning of August 15th, 1909, to the evening of August 14th, 1910.

2. By "total distance" is meant not the longest single flight, but the total of all the flights made by the aviator within the twelve months.

3. By cross-country flight is meant flights other than those performed within the limits of an aerodrome or other enclosed space.

4. Flights not officially recorded by either of the above-mentioned clubs will not be taken into account in allotting the prize.

5. The decision as to the winner will rest with a committee composed of the presidents of the French and English Aero Clubs and the editor of the *Daily Mail*.

The Royal Aero Club will record flights accomplished in this competition, provided they are certified by responsible persons at the ascent and descent.

Federation Aeronautique Internationale.

The annual conference of the Federation Aeronautique Internationale will be held at Bordeaux in September next, and the Royal Aero Club has appointed the following Committee to consider the questions to be sent in for discussion:—

Col. J. E. Capper, C.B., R.E.	Mr. A. Rawlinson.
Prof. A. K. Huntington.	Mr. Cecil Grace.
Mr. V. Ker-Seymer.	Mr. G. B. Cockburn.
Mr. Stanley Spooner.	Mr. Claude Grahame-White.
Mr. J. T. C. Moore-Brabazon.	Mr. A. Ogilvie.
Hon. C. S. Rolls.	Mr. A. M. Singer.

Any suggestions dealing with aviation will be welcomed, and should be sent to the Secretary before the 21st inst.

HAROLD E. PERRIN,
Secretary.

166, Piccadilly.

Claude Grahame-White Testimonial Fund.

Amount previously acknowledged	£1,751 6 5
Leicestershire Aero Club (S. W. Shaw), per Samuel Faire ..	1 1 0
Herbert A. Marshall ..	1 1 0
H. H. Wilds ..	1 1 0
W. L. Baker ..	0 10 6
R. R. Preston ..	0 5 0
South-Western Hotel Staff, per E. Kuntze	3 18 6
H. E. Masters, per	0 19 0
H. E. Masters ..	0 5 0
Ch. Cedard ..	0 5 0
A. Robinson ..	0 5 0
H. D. Clarke ..	0 2 0
M. W. ..	0 2 6
A. Fisher ..	0 1 0
Carried forward ..	1,756 3 11

Donations received up to Tuesday, May 31st, 1910.

Brought forward ..	1,756 3 11
W. Birchamoor ..	0 1 0
C. A. Jennings ..	0 1 9
H. Rippon ..	0 1 0
C. Smith ..	0 1 6
Thos. Yates ..	0 1 0
A. Bowen ..	0 1 0
T. C. ..	0 1 6
J. D. ..	0 1 0
H. Bridle ..	0 1 0
W. H. ..	0 2 0
J. Kidson ..	0 1 0
J. Robinson ..	0 1 0
Mayor of Lichfield, per	1 14 6
T. Andrews ..	2 2 0
Marquis of Anglesey ..	1 1 0
Carried forward ..	1,757 18 5

Brought forward ..	1,757 18 5
G. R. Benson ..	1 1 0
Arthur Chetwynd ..	1 1 0
Col. T. E. T. Walker, C.B., M.P.	1 1 0
Mrs. Davies ..	0 2 6
Lancashire Aero Club, per	6 8 6
J. Arnold Bradshaw ..	1 1 0
A. Huntly Walker ..	1 1 0
Miss Scott Wood	2 2 0
A few in Scotland	0 5 0
A few in Scotland	0 4 0
£1,766 17 11	

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

(NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.)

Conisborough and District Model Aeroplane Society.

THE second meeting of the above club was held at the Old Hall last week, when Mr. C. C. Allport was elected Hon. Secretary. The last two weeks of June was selected as the date for the model aeroplane meeting, and 14 entries have so far been received. A small flying ground has been offered and accepted. There will be three competitions, and the second will be divided into two classes. The competitions are:—

Excellence of construction.—Open to members only.
Longest flight.—Open to members only. 1st class models, 5 ft. span and under; 2nd class models, over 5 ft. span.

Longest flight.—Open to all.
Conditions.—All models to be made by competitors. Entrance fee 6d. for each model for each competition.

A gliding competition is proposed, with a special ladies' prize, should sufficient ladies enter.

† All enquiries should be sent to the Secretary, C. and D.M.A.E.S., Conisborough, Yorks. (Conisborough is 5 miles from Doncaster.)

Kite and Model Aeroplane Assoc. (27, VICTORY RD., WIMBLEDON)

OWING to the regretted illness of Mr. Akehurst, the hon. secretary, all communications should be addressed, until further notice, 53, Victoria Street, Westminster, S.W.

The Council have accepted the following entries for the competitions, which are being held at Wimbledon Common on Saturday, June 4th, at 2.30 p.m.

Longest Flight and Stability Competition.—C. Fleming-Williams, C. B. Ridley, W. R. Spice, R. F. Mann, T. W. K. Clarke, W. H. Sayers, G. P. Bragg Smith, W. R. Ding, C. R. Fairey, W. Cochran, E. C. Milligan, W. Leigh-Hunt, C. Desoutter, M. Desoutter, A. P. Riley.

Steering Competition.—W. R. Ding, C. K. Scarf, C. B. Ridley,

R. F. Mann, G. P. Bragg Smith, W. R. Spice, C. R. Fairey, C. F. Williams, W. H. Sayers, R. Lucas.

Youths' Competition.—C. Menzies, O. W. Jones, N. Whitchurch, C. K. Scarf, R. Lucas, Leslie Harris, Crawford Griffiths, R. F. Mann, C. Bates, C. B. Ridley, W. F. Lovegrove, G. Tester.

Manchester Aero Club (9, ALBERT SQUARE, MANCHESTER).

THE club has decided to acquire an aerodrome locally, a suitable ground having been tentatively selected, but the sub-committee are open to receive suggestions from those interested.

It has also been decided to form a model section, the subscription for which will be 7s. 6d. for those over 18 years old and 5s. under, per annum. Members of this section will have use of the club workshops, model flying ground, and storage. Mr. J. W. Carr has been appointed by this sub-committee to be their hon. sec. All those wishing to become members of this section should apply at once to the hon. sec. at 9, Albert Square.

On Wednesday evening there was a large attendance at the Victoria Hotel, when the prizes won at the recent model competition were distributed. Afterwards there was a general discussion as to the future programme.

Until further notice the weekly meetings will be held at the Victoria Hotel every Wednesday at 7.30 p.m.

Midland Aero Club (GRAND HOTEL, BIRMINGHAM).

A COUNCIL meeting of the club was held on Friday evening last, May 27th, when much interesting business was transacted in regard to the impending flying meet under the club's aegis at Wolverhampton.

The club's hangars are now completed, and have been let to Capt. Dawes, Messrs. Humber, Ltd., Mr. Lisle, the Star Engineering Co., Mr. G. Heath, and Mr. Ivy-Rogers. Lieut. Seddon, R.N., a member of the club, is now building his own hangar adjacent.

DUNSTALL PARK (WOLVERHAMPTON) MEETING.

A PROVISIONAL programme has been drawn up for the flying meeting, which will take place at Dunstall Park, from June 27th to July 2nd, under the auspices of the Midland Aero Club, on behalf of the Midland Aviation Syndicate, Ltd., and under the rules and approval of the Royal Aero Club and the International Aeronautic Federation.

The intention of the meet is to encourage British aviators and British machines, and over £5,000 will be distributed in prizes.

Programme for the Meeting.

1. Prize for Flight of Longest Aggregate Duration of Time.—1st prize, £1,000; 2nd prize, £200.
2. Prize for Cross-Country Flying.—1st prize, £300; 2nd prize, £100.
3. Prize for Passenger Carrying.—1st prize, £200; 2nd prize, £100.
4. Prize for All-Midland Aviators.—1st prize, £200; 2nd prize, £100.
5. Prize for Midland Machines.—1st prize, £200; 2nd prize, £100.
6. Prize for Figure Flying.—£100.
7. Prize for Shortest Get-Off.—£75.
8. Prize for Bomb-Throwing.—£75.
9. Prize for Aviators who have never previously flown in open competition.—1st prize, £100; 2nd prize, £50.

In events 6, 7, 8 and 9 consolation prizes will be awarded, and the above prizes may be increased or supplemented.

In addition to above, there will be side attractions in the "Model Exhibition," &c., &c.

Entries for the above events should be made without delay, and all particulars can be obtained from W. Ivy-Rogers, Secretary, Grand Hotel, Birmingham, and the Automobile Club, Lichfield Street, Wolverhampton.

The success of the meeting is already assured so far as the number of first-class entries are concerned, such names as the Hon. C. S. Rolls, the Hon. Maurice Egerton, Mr. Cecil Grace, Capt. Dickson, Mr. S. F. Cody, and Mr. J. Radley having already signified their intention of being present at the meeting.

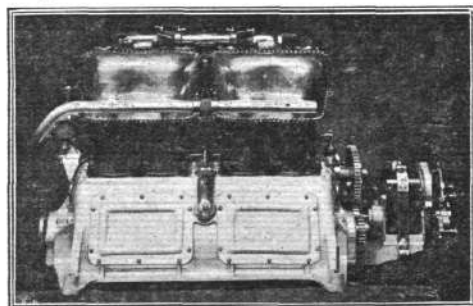
Negotiations are well advanced with other prominent men. Several members of the club, viz., Mr. Bradshaw, of Wolverhampton, Mr. Lionel Mander and Mr. Holder, will make their initial flying attempts during the progress of the meet, and good weather is the only necessity to make the meeting an absolute success.

Members of the club will be admitted free throughout the week to the aviation meeting. The club subscription is—

For members 21 years and over	...	£1	1	0	per annum.
" " under 21 years	...	0	10	6	"
" Ladies	...	0	10	6	"

PATRICK ALEXANDER ENGINE COMPETITION.

The accompanying photograph illustrates the 30-h.p. engine which has been entered by the Wolseley Tool and Motor Car Co. for the Alexander £1,000 prize. It has four cylinders, 3½ in. bore by 5½ in. stroke, and develops 30-h.p. at 1,100 revs., and 37-h.p. at 1,400 revs. per min. Complete with its Bosch H.T. magneto, water pipes on engine, and exhaust pipe, but without fly-wheel, the engine weighs 205 lbs. A special feature of the cylinders is that the water jackets are made of planished sheet metal, which allows of accurate coring, and ensures an even thickness of metal throughout, and ample water space around the valves and crown. All valves are underneath and on the same side of the motor, and are operated from the cam-shaft by hardened steel tappets. The carburettor is designed to suit aeroplane requirements, being fitted with induction-pipes to ensure an equal distribution to the cylinders.



The Wolseley Flight Engine.

BRITISH NOTES OF THE WEEK.

Mr. Mortimer Singer in London Again.

We are glad to announce that Mr. A. M. Singer has recently returned from abroad and that he attended a meeting of the Committee of the Royal Aero Club on Tuesday last, when he received the congratulations of those present on his recovery.

Flying at Brooklands.

THOSE of the visitors to Brooklands for the last race meeting who stayed behind afterwards, and tramped over to the flying ground, saw some very good sport. Mr. J. Radley made a couple of circuits of the ground, being officially timed by Major Lindsay Lloyd, as he had entered for the Royal Aero Club's pilot's certificate, requiring three qualifying flights, but he decided to postpone the third, as the weather conditions were not suitable. Later on in the evening good flights were made by the Hon. Alan Boyle on an Avis monoplane, by Mr. C. Lane on his monoplane, and by Mr. Geo. A. Barnes on the Humber monoplane, and each won one of the 15 guinea cups offered by the B.A.R.C. Mr. A. V. Roe was also out on his three-decker experimenting with a somewhat smaller propeller than the one he generally uses, and although he got off the ground once or twice he made no lengthy sustained flight.

Aviation at Worcester.

At a meeting held at the Guildhall, Worcester, last week, for the purpose of forming a local branch of the Aerial League, the chairman, Sir Richard Temple, moved that the secretaries should make inquiries with regard to the possibilities of a flying meeting at Worcester next year. He said it would be an enormous advertisement for the district, and would be most interesting. It was decided to form a local branch of the Aerial League, and Lord Hindlip was elected president; Sir Richard Temple, chairman; and Dr. Legge and Mr. W. F. Tree, hon. secretaries.

Southport Sands as Aerodrome.

As a result of his trial flights, Mr. C. C. Paterson has come to

the conclusion that the sands at the north end of the promenade at Southport will make a satisfactory aerodrome. He is therefore having a shed erected there capable of housing two machines, and proposes to make it his headquarters for six months. For six hours in the day there is a radius of six miles for flying, and it is expected that many people will visit Southport to see Mr. Paterson practise.

Mr. Radley at Bedford.

On the 26th and 27th, Mr. James Radley paid a visit to his native town of Bedford, and gave exhibitions with his Blériot monoplane on the polo ground. A strong gusty wind was against flying on the first day, and only two short flights of 400 yards in a straight line were carried out. The next day, however, Mr. Radley twice circled round the ground at a height of 30 ft.

A Blériot at Retford.

HAVING secured a Blériot machine, Mr. Slater, of Doncaster, has been carrying out some very satisfactory flights over private grounds at Forest House, on the outskirts of Retford. As these grounds are some distance from the main road, the public know very little of what is going on, but we understand that Mr. Slater is meeting with success in his tests, and is rapidly becoming master of his machine.

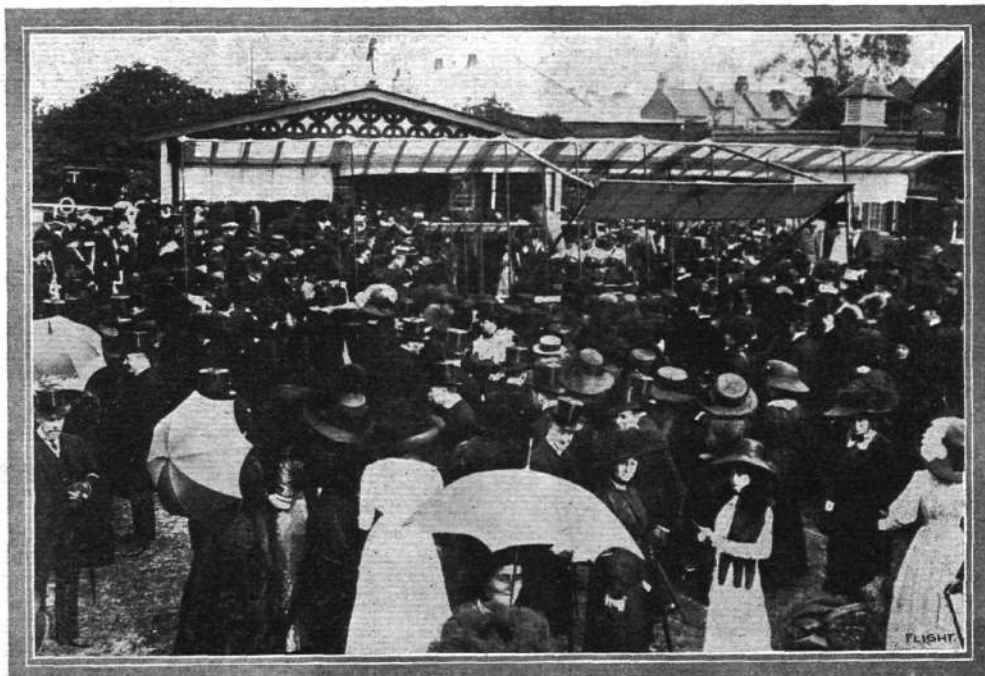
Windermere as a Flying Centre.

ALTHOUGH one would hardly imagine Windermere to be an ideal spot for flying experiments, it would appear likely that in a few weeks' time both an airship and an aeroplane will be undergoing tests over the lake. A large airship shed has been built in the lake on the east side about three miles from the southern end of the lake, while Messrs. Borwick and Sons, the boat builders, are constructing a monoplane, which is nearly finished. It is designed for rising from the water.

MR. C. GRAHAME-WHITE FLIES TO RANELAGH.

HAVING arranged to make a series of exhibition flights at Ranelagh, Mr. Claude Grahame-White determined to fly over there from

Brooklands on Thursday of last week, and successfully made the journey during the evening. Before leaving the Brooklands track



MR. CLAUDE GRAHAME-WHITE AT RANELAGH.—The habitués examining the Henry Farman biplane during the afternoon.

He flew round the flying ground three times at a height of about 200 ft., and came down to repair a couple of stays which had given way. Fixing a board to accommodate a passenger behind his seat, Mr. Grahame-White then took Lord Wodehouse for a trip twice round the track. On his descent he had the machine put in order and started off for Ranelagh. There was practically no wind, and he rose steadily to a height of 1,000 ft., and then headed for town. Still rising until he got up to 1,500 ft., he bore to the left towards Thames Ditton, and then over Kingston and Richmond Park, landing at Ranelagh at ten minutes to eight, having covered the fifteen miles in twenty minutes. As a final effort Mr. Grahame-White went up again, and made a wide circle over the neighbourhood of Ranelagh.

Unfortunately on Saturday afternoon the wind was against flying,

and although many prospective passengers made tempting offers to Mr. Grahame-White to take them for an aerial excursion, he had to ask them to wait awhile. Arrangements had been made for flying to take place between 3 and 6 p.m., but it was not till after 6 p.m. that Mr. Grahame-White deemed it prudent to start. Then the flying was cut short by a sharp shower, which sent the crowd of spectators hurrying home. Shortly after 8, however, Mr. Grahame-White started again, and flew for about a quarter of an hour, flying at a height of about 600 ft. over Putney and Barnes Common. Arrangements were made to take a number of people for five minute trips at £10 10s. each.

Mr. Grahame-White has arranged to give a series of exhibition flights at the Crystal Palace on Tuesday, June 7th, from 5.30 to 8 p.m.

LIEUTENANT DUNNE'S "AUTOMATIC STABILITY" MACHINE.

ON Friday of last week Lieut. J. W. Dunne made a highly successful trip on his cleverly designed biplane. Starting from Eastchurch, and rising to a height of 20 ft., Lieut. Dunne flew for two miles in a bee-line for Leysdown, and during this part of the flight the machine was left to take care of itself. This it did in masterly style, the aviator not requiring to make any adjustment of the elevating levers until Capel Hill was reached. It was then decided to pass over this, but Lieut. Dunne misjudged the distance and could not rise high enough in time. He therefore flew in a

circular direction for about a third of a mile, and landed on the top of the hill. The skids were slightly damaged in landing.

Photos of the machine in flight appeared in our issues of April 9th and 30th, and our readers will remember that the planes are in the form of an arrow, sloping backwards slightly. They have an area of 560 sq. ft., and during the above flight a load of 1,700 lbs. was carried. The speed over the ground was 29 miles an hour, and as this was against a ten-mile wind, the speed of the machine was estimated at 39 miles an hour. The engine is a 50-h.p. Green.

THE VERONA MEETING.

PAULHAN was the chief attraction at the Verona meeting last week, but with Efimoff, Chavez, Duray, Kuller, and the local Cattaneo in the bill there should have been a splendid lot of flying. It was unfortunate, therefore, that during the first three days the weather should have prevented any flights of a greater duration than ten minutes. On the 25th the conditions moderated, and Paulhan made a trip of 44 kiloms. with a passenger, and during the day flew a total of 90 kiloms., while Efimoff totalled 78 kiloms., and Cattaneo 24 kiloms. Duray won the daily speed prize, his time for the 4 kiloms. being 3 mins. 26½ secs. The best day's flying was seen on the 26th ult., when both Paulhan and Efimoff were flying for some time over a kilometre above the earth. The daily height prize was won by Paulhan, who reached 1,163 metres, while Efimoff was second with 1,006 metres, and Chavez third, 786 metres, all three being mounted on Henry Farman machines. The daily speed prize was won by Cattaneo, whose time for 4 kiloms. was 3 mins. 7 secs., while the passenger prize went to Paulhan, who covered 20 kiloms. On the 27th, the distance prize was the chief event in the programme, it

being won by Paulhan with 70 kiloms. in 1 hr. 20 mins. 39 secs., Efimoff being second with 38 kiloms. in 44 mins. 9 secs. On Saturday, only Paulhan, Efimoff and Cattaneo were out, and they shared the prizes, Paulhan taking the height prize with 384 metres, Efimoff the distance prize with 40 kiloms., and Cattaneo the speed prize, his time being 3 mins. 36½ secs. During the day Paulhan flew to Solferino, as we report elsewhere.

Unfortunately, the last day was marred by a serious accident to Duray. His machine was damaged on the 26th, and having the repairs completed he decided to try the machine on Sunday. While running along the ground, however, it was upset, and the aviator thrown out. The machine passed over him and the propeller struck him in the chest. It was at first feared that he would not recover, but later despatches report that he is making good progress. Paulhan, Cattaneo, and Efimoff again shared the prizes as on the previous day, their performances being: Paulhan, 315 metres for the altitude prize; Efimoff, 66 kiloms. for the distance prize; and Cattaneo, 3 mins. 38½ secs. for the speed prize.

HON. C. S. ROLLS AT DOVER.

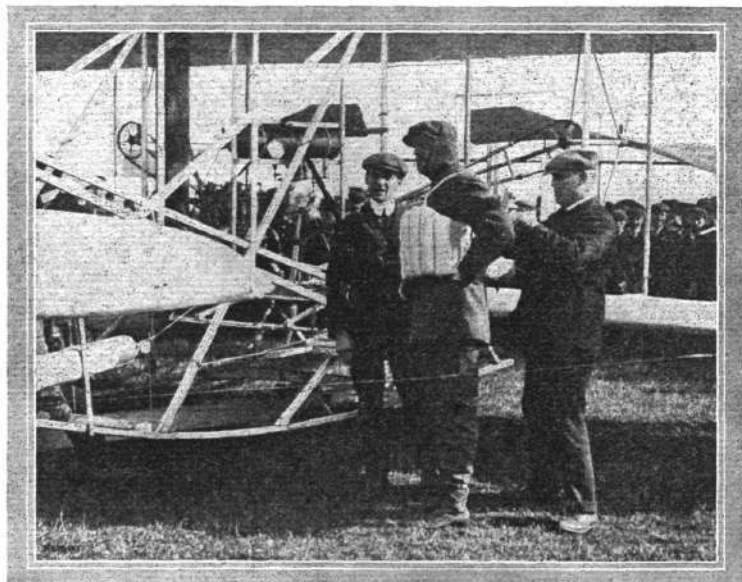
As we mentioned in our last issue, the Hon. C. S. Rolls, although forestalled in the winning of the Ruinat Prize, decided to stay on at Dover with the object of flying across to France at the first opportunity.

Unfortunately, up to the time of going to press on Wednesday, the weather was against flying, and Mr. Rolls therefore deemed it prudent to postpone the attempt.

On the 26th ult., everything was in readiness, and a trial trip was decided on.

The machine rose from the rail in a meadow on the East Cliff with perfect ease, and rising to a height of about 200 ft., flew out towards the Channel. Turning at the edge of the cliff, Mr. Rolls continued flying in a series of circles for about 20 minutes.

On the following afternoon, Friday, the conditions were again right, and Mr. Rolls decided to make another trial, and if everything was working perfectly, to start on the cross-Channel trip. Unfortunately, motor trouble supervened, and in a sudden descent from a height of 120 ft., the runners were damaged, and so caused another postponement.



The Hon. C. S. Rolls has his lifebelt adjusted prior to his attempt to fly the Channel on his Wright machine.

FOREIGN AVIATION AND AIRSHIP NEWS.

Mourmelon to Rheims.

THE weather conditions being favourable, Lindpaintner decided to again pay an aerial visit to some friends of his at Rheims on his Henry Farman machine on the 24th ult. During the morning he had carried several passengers for trial trips over the camp, and a little past four in the afternoon, after a preliminary run round the parade ground, he left Mourmelon in the direction of Rheims. He passed over Rheims Cathedral, and afterwards landed on the Bethenay flying ground. Although a heavy wind had sprung up, when rested for a few minutes, he decided to return. It proved too strong, and he could only cover seven kiloms. of the return journey, landing on one of the farms belonging to the Marquis de Polignac.

Maurice Farman Visits Blériot.

ON the morning of the 24th ult. Maurice Farman, accompanied by Tabateau, decided to take advantage of a favourable wind to pay a visit to Blériot at Toury and witness his experiments. Having the wind behind, a very fast trip was made, a little less than 20 minutes being taken for the 30 kiloms. journey.

Farman School at Etampes.

SPLENDID progress has been made during the past week at the new Farman school at Etampes, and the pupils Togni, Baskine, Matzewich, Baugriet, Florence, André, Hins, Tokugawa, Somerset and Blanchard have been given lessons by M. Mahieu. On Saturday last the instructor made twenty flights of varying duration, each time being accompanied by a pupil. Bruneau de Laborie is now master of his machine. He flew for an hour on Saturday, half an hour on the previous day, and twenty minutes on Monday. Mdle. Aboukaia made a passenger flight of half an hour's duration on Monday.

Doings at Mourmelon.

The Farman School.—Tetard, on the 24th, was in the air for an hour, and on the 26th won an Ae.C.F. 25-kilom. prize, although a very strong wind was blowing. He has also been testing several new machines, these trial trips generally being of twenty minutes' duration. Most of the pupils have migrated to the new school at Etampes, but Didier has continued his training, as well as Lebedeff, who passed for his pilot's certificate on Saturday. The military pupils have been out every day, and on Saturday one of them—Lieut. Bellenger—carried Miss Bird as a passenger for a short trip. Mr. Henry Farman himself was trying his new machine on Monday, and carried several passengers.

The Antoinette School.—On the 24th ult. Latham paid a visit to Mourmelon and flew for half an hour on a new machine. Labouchere also was out for 15 minutes, and rose to a height of 150 metres. The pupils, Lafond, Thomas and Gobe, have all made good progress, and on Saturday Capt. Burgeat twice made a twenty-minute flight. On Sunday, in spite of a brisk breeze, Wachter easily won the fourth Ae.C.F. *débutante* prize with a flight of 25 kiloms., while in the afternoon he was flying for 50 mins. and rose to a height of 200 metres.

Other Progress.—In his first three trials on his new Voisin last week end, Mr. Albert Niel flew 15, 20, and 20 minutes respectively, and Bunau-Varilla, on a new racing Voisin, circled round the flying ground four times on Monday at a very high speed. The other Voisin pupils, Mdle. Itier, de Langhe, Ruchonnet, Gabriel, and Copetta, have each made short flights of 5 to 10 mins. each. Duval on the Saulnier monoplane has also scored several good flights, the best being on Monday, when he was up three times for a distance of 2 kiloms. at a height of 10 metres.

Progress at Issy.

ON Friday of last week the Crown Prince of Turkey paid a visit to Issy, and inspected the various flying machines. M. Leblanc twice flew round the parade ground for the entertainment of the royal visitor, while Anzani tested his modified Blériot, but did not leave the ground for any considerable distance. Obre, on the monoplane of his own design, made two long jumps of 400 metres on the 27th ult. Taurin executed the necessary flights for his pilot certificate on his Blériot on Saturday, and in the evening flew round the ground nine times. Audemard also made eight circuits on his Clement "Demoiselle," while M. Clement, on his Clement-Bayard biplane, was observed making the first qualifying flight for his pilot certificate.

Sommer at Mouzon.

USING a new machine, Sommer on Friday of last week made a trip of 15 mins., while Lindpaintner, who has recently been doing

so well on a Henry Farman machine, at his second trial, on a Sommer, kept going for 20 mins., attaining a height of 400 metres. Vallon covered 15 kiloms. in a closed circuit on Sunday.

Hanriot School at Rheims.

ON Saturday evening Marcel Hanriot, on his monoplane, made the necessary flights to qualify for his Ae.C.F. *pilote-aviateur* certificate.

Sommer at Mourmelon.

REALISING the splendid nature of Chalens Camp as a training ground for pupils, M. Sommer has decided to transfer his school to Mourmelon. It will be remembered that at the time when the recent disastrous storm swept over the camp M. Sommer had just erected several sheds there. These have been replaced, and everything is now ready.

Dubonnet Has a Fall.

WHILE practising on his Tellier monoplane, on the 28th ult., at Draveil, M. Dubonnet met with a nasty mishap, through the sudden stopping of his engine. He was flying at a height of ten metres at the time, and as a result of the sudden drop the machine was seriously damaged, but the aviator escaped unhurt.

A Mishap to M. Martinet.

HAVING got the damage sustained by his machine in its sudden landing at Neufmoutiers repaired, M. Martinet arranged to start on another series of cross-country flights on Friday of last week. Unfortunately, a wire stay gave way just as he had started, and the machine crashed to the ground. Although the biplane was wrecked, the aviator escaped unhurt.

L. Blériot Repeats his Toury to Etampes Trip.

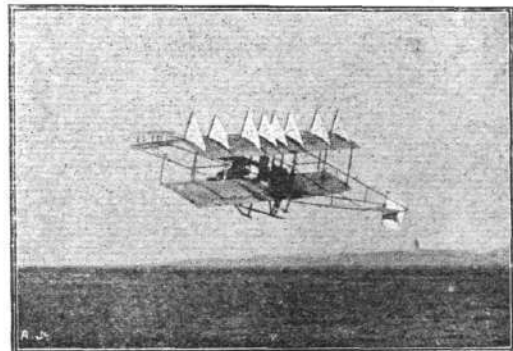
MOUNTED on a monoplane of the modified cross-Channel type, M. Blériot, on the 28th, repeated his excursion of a year ago by flying from his trial ground at Toury to Etampes, a distance of 30 kiloms. This little trip was made at 5 a.m., with the same ease as anyone else going for a motor car ride before breakfast. Later in the day Leblanc mounted the machine and flew it back to Toury, passing over Toury at a height of 150 metres.

Leblanc Goes to Chartres.

THE next day to that on which these excursions were made, M. Leblanc spied out the land from Toury to Chartres, and arranged to fly there on Monday morning. A violent wind was blowing, however, and it was decided to postpone the excursion. Later in the day the wind dropped, and then M. Leblanc started off. Unfortunately, the petrol supply gave out, and the aviator was forced to land a little over a kilometre short of his destination. He covered about 45 kiloms., which was in itself an excellent performance.

Cross-Country Flying by French Military Officers.

By way of practice for their projected trip from Mourmelon to Vincennes, Lieut. Fequant and Capt. Marconnet carried out a



The Herring-Burgess biplane in its latest form. It will be noticed that two additional fins have been fitted since the machine was described in this journal on April 23rd last.

lengthy trial on the 28th ult. After flying round the camp several times, the two officers set off in the direction of Chalons, and finally landed at a farm near Valdenay, two kiloms. south of Chalons, after having been in the air for three-quarters of an hour.

M. Blériot and Aerial Law.

It is not difficult to see that the International Conference on Aerial Navigation, which is now sitting in Paris, must occasionally have difficulty with regard to practical questions, and M. Blériot, Latham, and Paulhan have been asked for their views on certain points. M. Blériot attended before the Conference on Thursday of last week, and gave it as his opinion that in the air an aeroplane should give way to the airship, while the latter should give way to an ordinary balloon.

Entries for Rheims Meeting.

ALREADY 42 entries have been received for the flying meeting at Rheims next month, so that it promises to eclipse the success of last year. There is a good variety about the machines, which include 9 Henry Farman, 6 Antoinettes, 5 Voisins, 4 Blériots, 4 Sanchez-Besa, 3 Sommers, 2 Wrights, 2 Breguets, 2 Hanriot, and 1 each Maurice Farman, Tellier, and Goupy.

Flying in Belgium.

ON Monday, the only flyer who decided to make a trial at Kiewit-lez-Asselt was the Chevalier de Lamine, and he completed three trips—the first of 20 mins. 27 secs., the second of 7 mins. 19 secs., and the third, with a passenger, of 8 mins. 51 secs.

Fined for Trans-Berlin Trip.

As we hinted last week, Herr Karl Frey was not wrong in his surmise that the German police would seek satisfaction from him for his "crime" in flying across Berlin. Although he hurried back to Paris, the police authorities proceeded with the matter and fined the young aviator £7 10s. This has stimulated the German aerial societies to prepare a petition for presentation to the Reichstag, asking that the restrictions with regard to cross-country flying should be modified.

Russian Government and Flying.

As a result of the flying meeting at St. Petersburg, the Russian Government have purchased the Henry Farman machines belonging to Christiaens and Edmond, and the latter has been engaged for two months, to instruct the military officers who will eventually use the machines.

Osmont at Bucharest.

BEFORE leaving Bucharest on the 27th ult., Osmont was commanded to explain and demonstrate his Henry Farman machine to the Royal Family, and made a flight lasting some 40 minutes, during which he attained an altitude of 412 metres.

Paulhan Visits Solferino Battlefield.

ON Saturday last M. Paulhan flew from Verona to the site of the battlefield at Solferino, where he placed a wreath bound with tricolour ribbon upon the column erected to the memory of the French soldiers who perished in the battle of 1859. Having accomplished his mission, M. Paulhan flew back to Verona, and during the half-hour trip passed through a drenching shower of rain.

Bologna Flying Meeting.

A SMALL flying meeting was held last week at Bologna, with Van den Born and Olieslaegers as the star performers. On Saturday the competition was for the height prize, which was won by Olieslaegers, who, on his Blériot, got up 225 metres, while Van den Born was second, reaching 215 metres on his Henry Farman biplane. The following day the wind rendered flying practically impossible. The crowd showing signs of becoming restive, Van den Born by an effort made four very short trips, and in the evening Olieslaegers circled round the grounds four times. On Monday the latter made a splendid trip of 42 mins., and ended by planing down from 200 metres.

D. Kinet at Naples.

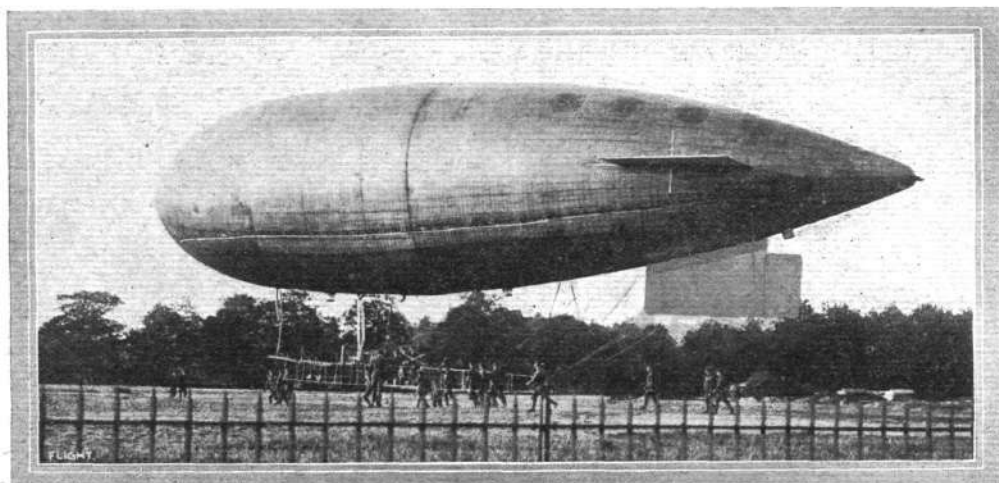
ON the 25th ult. Daniel Kinet made four fine flights at the military camp at Naples. In the course of the first, of 25 minutes' duration, he passed over the village of Capodichino, while during the second, which lasted 20 minutes, he flew over San Pietro-patierno. The other two flights were short, and, made with passengers.

Mamet at Valencia.

As a finish to a series of exhibition flights which he has been giving at Valencia, Mamet arranged to fly over a ballonet at a height of 500 metres on Monday last. After a flight of 15 mins. he attained the height of the ballonet, but just then his motor stopped for some reason, and he fell into the sea, from which he was rescued by a motor boat. Nothing daunted, the aviator determined to make another attempt on his second machine, but this time the cord holding the ballonet broke. To compensate, the aviator gave the crowd a series of thrills by flying in the form of a figure eight, and by planing flights.

"Zeppelin V" Now Ready.

THE new Zeppelin dirigible having been completed, arrangements have been made for it to visit Austria. On the 9th inst. according to the programme, it is to sail from Friedrichshafen to Kornburg, where a landing place will be provided. From there on the following day it will proceed to Schoenbrunn in order to be inspected by the Emperor Francis Joseph, and afterwards it will sail on to Vienna. It may stop there a couple of days, after which a grand voyage has been planned, with landings at Breslau and Dresden.



British Army Airship "Beta," as it appeared during a trial trip on the 26th ult., which lasted an hour and gave satisfactory results. It will be observed that the external ballonets have been replaced by fins, and the steering-gear has undergone modification.

GLENN CURTISS' ALBANY-NEW YORK FLIGHT.

SINCE his remarkable success in winning the Gordon-Bennett Trophy at Rheims last year, little has been heard of Glenn Curtiss until Sunday last, when by his fine flight along the Hudson River from Albany to New York he again leapt into publicity and won for himself a sum of \$10,000 (£2,000). The prize was offered by the *New York World*, in connection with the Hudson-Fulton Centenary celebrations, and the original rules stipulated that the aviator should fly up the river from New York to Albany and make the trip without a stop. Several dirigibles entered, but none of them got through, and then the rules were somewhat modified, to allow of the journey being made in either direction, with stops for fuel.

For some days Mr. Curtiss had been waiting on the weather, and when the conditions on Sunday morning were favourable he decided to start at once. Everything was ready at 7 a.m., and the aeroplane, which is only of 30 ft. span, rose from Van Rensselaer Island and flew above the Hudson river at a height of 1,000 ft. It was followed by a special train, which had to keep up to top speed in order not to lose sight of the flyer. The first stop was at Poughkeepsie Island, where he landed at 8.24 to replenish petrol and look to his engine. An hour later he was under way again, and flew down the river at a steady pace to Manhattan Island, where he made a second stop in a field near Spuyten Duyvil, having covered 137 miles in 2 hrs. 32 mins. After a stop of an hour and ten minutes, Curtiss once more started and flew to Governor's Island, where he landed on the seashore after passing over the shipping in the river, which included the Cunard ss. "Mauretania." The total distance covered was a little under 150 miles, and the net time, not including stops of course, was 2 hrs. 54 mins., the average speed being 51½ miles per hour. At the end of the flight, Mr. Curtiss said the conditions were splendid, and he only found the wind troublesome at one point, just between the Catskill cliffs. He had, however, some anxiety during the first part of the trip, through the excessive vibration on a stay wire, but this was tightened at Poughkeepsie and gave no more trouble.



THE CURTISS ALBANY-NEW YORK FLIGHT.—View, looking up stream, at one of the most picturesque points on the Hudson River. It was probably at this spot that the most troublesome eddies and cross air currents were encountered by Mr. Curtiss.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents asking questions relating to articles which they have read in **FLIGHT**, would much facilitate our work of reference by giving the number of the letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

STREAM LINE EXPERIMENTS.

[546] With reference to letter No. 376. If your correspondent cares to study the question of stream lines at all closely she may be glad to hear of the manner in which I sought to investigate this subject.

There is a dusty old loft in the works where I am employed, and I have sat for hours fixing a paper plane in the path of the sun-beams that fell through the skylight, and blowing the dust-laden air over the surface at every angle. I have thus been able to follow the course of the particles in a perfectly easy and simple way.

Perhaps also your correspondent will let me know this:—

Do her observations for a stationary plane and moving air coincide with those for a moving plane in still air? If not, will she give a sketch of the disposition of particles, principally at the leading edge, for each case?

My method may be rough, but it was a case of necessity being the mother of invention at the time of my experiments.

Gravesend.

HERBERT F. H. SHIELDS.

[547] Would you oblige me by letting me know, through the medium of your valuable paper, whether you or any of your readers know of any instance on which a "helicopter" type of aeroplane has flown, with, of course, a pilot, and with what success. Also, what is your opinion of the "helicopter" as regards being a good flyer? Have been a constant reader of your splendid paper, but find no accounts of helicopter flights. Thanking you in anticipation.

Liverpool.

E. MITCHELL.

[We are not aware of any successful helicopter, nor do we think it would be an easy machine to bring to perfection.—Ed.]

STRUT SECTIONS.

[548] On page 73 of your issue of January 29th last, in an article on "Design and Construction of Aeroplanes," by Messrs. Chittenden and Robinson, referring to the resistance of struts or exposed beams of various sections, they say: "Taking the resistance of a flat surface $R = 1$, then for a cylindrical section $R = .54$, and for an ichthyoid $R = .2$." In a lecture of Mr. Cody's, which I recently attended, he spoke strongly in favour of the ichthyoid section.

But on page 54 of Sir Hiram S. Maxim's "Artificial and Natural Flight," 1908 edition, his experiments with woods of different sections showed the blunt-nosed ichthyoid section to produce more drift than a double ellipse.

I should be much obliged if you could inform me which section is at the present day reckoned the right one for struts or exposed beams of aeroplanes.

LEARNER.

[On purely theoretical grounds the fish-shaped section, with bluff entry and tapering trail, should offer a minimum resistance to its passage through the air, but it has hardly been established in practice that such refinement offers sufficient material advantage to warrant any extra expense in construction. Reference to our recent article on the new Short biplane will show that this firm, at any rate, have discarded stream line sections for their struts and spars, which are now only finished off to the extent of merely rounding the sharp edges.—Ed.]

BUOYANT WINGS.

[549] Being deeply interested in the study of aeroplanes I wish to ascertain if the following suggestion has ever been made, and, if so, why it is not carried out. The suggestion is, "Why not make the planes hollow, and fill them with hydrogen?"

I shall be deeply obliged if you will let me know.

Upper Clapton, N.E.

HAROLD L. GOLDMAN.

[We have no doubt that this idea has occurred to many, but we do not suppose that its advantages would compensate for the difficulties of its practical application. Moreover, we imagine that a

very simple calculation would suffice to show how little lifting effect would be available from the internal capacity of the wings of an ordinary monoplane or biplane.—Ed.]

BLÉRIOT CONSTRUCTION.

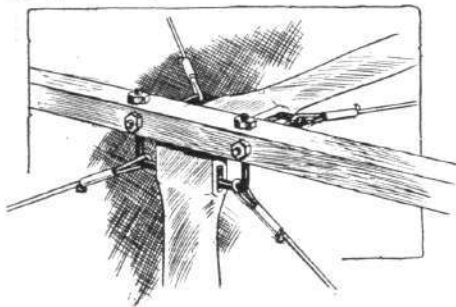
[550] Could you insert in your valuable paper a sketch of the Blériot pattern wire clamps application. I do not quite gather from Capt. Windham's explanation on p. 548 of FLIGHT for Sept. 4th, 1909, how it works.

I am indebted greatly to you for many constructive details of great value.

Delhi, India.

JAC.

[The accompanying sketch illustrates very clearly the particulars asked for by our correspondent. The U bolts are of steel, and vary



in size from a diameter of $\frac{1}{8}$ in. to $\frac{1}{4}$ in., the larger size being used for the front end of the girder. The vertical struts are placed slightly in advance of the horizontal struts to enable the U bolts to clear each other.—Ed.]

THE CYCLOPLANE.

[551] On looking at an old number of FLIGHT the other day, I noticed a letter, No. 442, written by a Mr. Gaunt, of the Cycloplane Works, Gargrave. As I have not heard of any cycloplane actually in flight, I should like to ask Mr. Gaunt, through your valuable paper, of the results he has obtained with his machines.

At the Olympia Exhibition there was a cycloplane with this notice affixed to it: "If this machine fails to fly at the Crystal Palace before the end of the month, all orders for it will be automatically cancelled." The inventor of it told me that an attempt was to be made the following Thursday. I could find nothing about it, however, in Friday's papers. I should very much like to know if any news has reached you about this machine.

Gerrard's Cross.

O. D. A.

LOADING OF GLIDERS.

[552] May I offer a few words of friendly criticism upon the suggestions in the letter from Miss Lilian E. Bland (538), in which she states, *inter alia*, that a well-designed glider should carry a load of 14 lbs. to the square foot.

It would do so, of course, at a comparatively large gliding angle and high air speed, both elements attended with risk to machine and pilot. I have followed Miss Bland's accounts of her experiments with the greatest interest, but cannot recollect particulars of free flights made by the glider with pilot on board from which the really useful data can be obtained. When Miss Bland states that her glider will support a load of 2 lbs. per sq. ft., I understand she refers to the machine flown as a kite, which is a somewhat different matter. In this case I believe the load should be supported with the machine in its soaring position with the cords from the leading edge vertical upon a hill representing its gliding angle.

Is Miss Bland quite sure also of her wind speeds? A breeze of 30 m.p.h. has more than twice the lift of a breeze of 20 m.p.h., according to the tables of Mr. Lanchester, and the practical experience of Mr. Wilbur Wright (FLIGHT, October 9th, 1909). In the same series of articles Mr. Wright also describes how, having on one occasion started gliding experiments in a breeze of something over 20 m.p.h., they stopped to take an anemometer reading and found their wind to be over 37 m.p.h., which seems to suggest that a very considerable increase in wind speed is not so noticeable as one would imagine.

In my own elementary experiments I have found that the machine when flown in soaring flights, kite-fashion, with long cords, seems to have a considerably greater lifting efficiency than when held breast high, and I imagine this to be due to the fact that the breeze has an increased speed when well away from the ground.

Miss Bland's tables are always interesting, but upon turning up my FLIGHTS I find the following dimensions given in two, which I have open before me at the moment of writing:—

Lilienthal's monoplane glider 140 sq. ft. (FLIGHT, January 1st, 1910).

Pilcher's monoplane glider 180 sq. ft. (FLIGHT, January 8th, 1910).

Both machines weigh about 50 lbs. each, and allowing the construction as suitable for a 150 lb. pilot, we have:—

Lilienthal's machine built to carry 142 lbs. to the sq. ft.

Pilcher's machine built to carry 111 lbs. to the sq. ft.

Both figures unfortunately differ from those quoted by Miss Bland, but are the only two I can turn up at the moment.

I see from the description of Miss Bland's machine (FLIGHT, February 19th, 1910), that the supporting surface is 260 sq. ft., with a somewhat excessive weight of 200 lbs.

If I may be so bold as to estimate the weight of the pilot at 110 lbs., the machine is apparently constructed to carry about 112 lbs. to the sq. ft.

Now I am chiefly interested in the sporting and practical side of gliding rather than its mathematical, but if I can rightly apply Mr. Lanchester's tables (FLIGHT, May 22nd, 1909), I should make the following comparisons and deductions in respect to the above gliders.

The resistance efficiency of Lilienthal's and Pilcher's machines must have had a high value owing to their simple monoplane construction, but the low aspect-ratio, about 3 in both cases, gave a comparatively low lifting efficiency.

I should deduce, therefore, that the air speeds for their natural gliding angles were: Lilienthal's glider about 32 m.p.h.; Pilcher's glider about 28 m.p.h. With the absence of means for proper control of the machines, both speeds are impracticable from the point of view of those wishing to enjoy gliding as a sport, and both the landing and launching difficulties must have been highly hazardous.

In Miss Bland's machine, the lifting efficiency is considerably higher with the aspect-ratio 5.5 for each plane, but as a biplane, with its necessary stanchions, outriggers, wiring, &c., the proportionate resistance is much increased.

I should expect upon an incline of 1 in 10 or so to find an air-speed necessary of about 24 m.p.h., which is, in my opinion, rather too high for sporting purposes, necessitating a breeze stronger than one can ordinarily find blowing steadily, and presenting many difficulties in launching.

I have ventured to suggest $\frac{3}{4}$ lb. per sq. ft. as a load which will allow gliding to be enjoyed upon ordinary sloping downs with a mild breeze of 15 m.p.h., and anything under this speed with the aid of the starting rail and pylone.

I should much like to read an account from Miss Bland of any free flight experiments with her glider, and a photo of the machine in mid-air during a 300 yds. gliding flight would be most interesting and instructive. From the illustrations it seems fully capable of this, and Miss Bland is much to be congratulated upon her design and enterprise.

I feel upon reading through what I have written that my broad deductions are open to considerable criticism, possibly on account of lack of space to add the often necessary qualifications, but I must really not encroach further upon the hospitality of your columns.

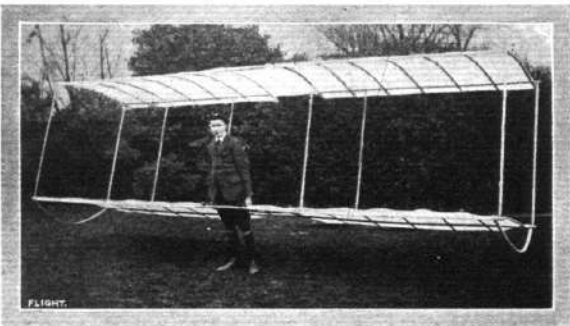
Sutton.

HORACE W. H. VAUGHAN.

THE RIDLEY GLIDER.

[553] In reply to Mr. J. W. Dewar's letter (527), May 21st, I have pleasure in stating that:—

1. The dihedral angle of the main plane is 165°.



2. The angle of the main plane is nil, but the tips on the elevator are brought down to 15°.
3. The pitch of propeller is 11 ins. and the thrust about $\frac{1}{4}$ oz.
4. The weight of the model is 1 $\frac{3}{4}$ ozs.

C. RIDLEY.

THE NEGATIVE ANGLE.

[554] Referring to the letter of Mr. Haynes (459) on the negative angle, I notice that in watching Mr. Howard's experiments at Olympia, he formed the impression that the body of the machine was tilted up during flight, sufficiently to give the planes a negative angle of entry; in this I cannot agree with him. Being very much interested in Mr. Howard's ideas, I built a model on the lines of the large one, which he exhibited, with metal planes. This model, although weighing nearly 2 lbs., glides for a great distance when thrown off with the body perfectly horizontal. If any upward tendency is given to the model in starting it, it refuses to glide at all, shooting straight up into the air and descending on its tail. The negative angle at which the planes are set is so great that before a positive angle of the chord could be reached the body of the glider would be tilted up to an impossible extent. The reasoning adopted in your article of March 26th, and referred to in your comments, does not appear to be entirely correct, in that a resultant of tangents of the forward and trailing angles is taken as giving the lifting component, whereas actually the resultant of these two tangents will give the effective angle of incidence. As in Mr. Howard's model, the curve of the planes is a circular arc, this resultant effective angle of incidence will be identical with the chord angle of incidence.

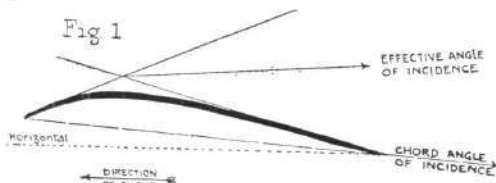
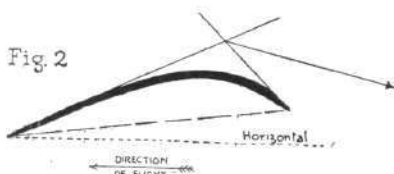


Fig. 2



The only form in which a negative chord angle could give a positive angle of incidence would be a case in which the trailing edge of the plane had the greater angle, which of course is the converse of the usual practice, as shown in Fig. 2. These resultant angles of incidence are naturally purely theoretical, and would not obtain in practice, as they are based upon the theory that the air-stream not only follows truly the curvature of the plane, but leaves the trailing edge at a similar angle, which is certainly not the case.

The essential point, which seems to have been somewhat lost sight of in your article of March 26th, is that the lift is a reaction due to the weight of air thrown down, and consequently the relative wind must always be downwards; such relative upward wind as may exist at the leading edge, while it may increase efficiency by reducing eddies, must be subtracted from the air thrown down in order to arrive at the lifting effect.

I am entirely in agreement with your suggestion that the whole subject is one of great interest and importance, and is at present in a very unsatisfactory state.

The behaviour of stream-lines in air would appear to be a most useful field for investigation. Too much reliance is commonly placed on the results of stream-line experiments in liquids. These are generally similar where the liquid is in contact with the plane, but differ considerably where it is thrown off from the trailing edge. Since an aeroplane is essentially an apparatus for creating a downward displacement of the air relatively to itself, it follows that the direction of the air-streams at its trailing edge is of the utmost importance.

Messrs. Short Bros. have conducted some experiments with various shaped planes in a current of steam, but the results obtained have, for obvious reasons, not been made public. It is earnestly to be hoped that this line of research will be shortly taken up by some public body, such as the Aeronautical Society or the National

Physical Laboratory. In so far as would appear from the published reports, not much seems to have been done in this direction; but one may hope that more is being done behind the scenes.

L. GRAHAM DAVIES.

[We are inclined to think, from the terms of the above letter, that our correspondent has somewhat misunderstood our use of the expression "angle of deflection," which is the entire angle formed by the intersection of the tangent of the leading edge with the tangent of the trailing edge. On the assumption that the aerofoil receives the air tangentially to its leading edge, and discharges it tangentially to its trailing edge, then the angle of deflection thus indicated will be a relative measure of the change of direction taking place in the air stream, and as such will also be a relative measure of the upward thrust communicated to the aerofoil. Now, as we showed by diagrams, this angle of deflection is always positive; consequently there is always a theoretical lift, irrespective of whether the chord has a positive or negative angle of incidence.—ED.]

[555] I wish to confirm the statement of Mr. E. T. Haynes in your issue of April 16th. I saw several flights at Olympia of the model to which he refers, and undoubtedly when in flight the fuselage inclined downwards towards the tail, with the result that the main planes then had a positive angle of attack, though they were set at a negative angle as regards the fuselage.

A. S. E. ACKERMANN, B.Sc. (Engineering), A.M.I.C.E.

GLIDER LIFT.

[556] I am building a glider similar to a Henry Farman machine, the dimensions of which are, main planes 24 ft. by 5 ft. 3 in., elevator 8 ft. by 18 in., tail 6 ft. by 1 ft., rudder 3 ft. 6 in. by 2 ft., and overall length 22 ft.

Would you kindly inform me if this will comfortably lift me (I weigh 140 lbs.), also if I could use a starting rail and derrick.

Eastbourne. A. DENDY.

[As far as the loading is concerned, which works out about $\frac{1}{2}$ lb. per sq. ft. supporting surface, there should be no difficulty in supporting the weight. There might be some difficulty in connection with the starting rail on account of the presence of the long tail, but this is entirely a matter for experiment.—ED.]

MODELS.

MODEL PROPELLER.

[557] Could any of your correspondents, or could you, tell me what size of propeller would be needed to propel a model monoplane of 24 in. span and 24 in. length?

I frequently notice correspondents asking in FLIGHT what amount of rubber will be required for models of certain sizes. I found by experimenting that if you want the rubber stretched the whole length of the aeroplane it is best to have as many feet of rubber as the model is inches long. The rubber must not be stretched to measure this length; if it is stretched, however, two feet in every six feet, it will give better results. I do not say that this is correct every time, because the motive power on models is only found by experimenting, but I think my theory will be a pretty good basis to work on.

If any model makers disagree with me I shall be pleased to hear from them.

York Street, W.

BENEDICT F. HUSSEY.

CLOCKWORK MOTOR.

[558] Having completed my model Farman biplane (made from designs in your valuable journal, FLIGHT, dated October 16th, 1909), and with which I was successful in obtaining first prize, for youths under eighteen years of age, at Manchester Aero Club Model Exhibition, I should feel greatly obliged if some reader would suggest a suitable clockwork motor for use thereon, and would state the limiting weight of such motor. The following are the measurements of my model:—

Span, 3 ft.; length, elevator to end of tail, 4 ft.; distance between planes, 6 ins.

Weight of machine (not including motor), 17 oz.

Prestwich.

A. J. CHORLTON.

MODEL ESTIMATES.

[559] Re letter No. 504 by Mr. J. Watson, he may take approximately 2 lbs. as a limit for the weight of his machine, that is, assuming that his model is fairly efficient all round.

Concerning a motor for same, Mr. J. Watson would do well to remember that the power required would be fairly high, that is, assuming that a 16 in., or thereabouts, diameter propeller is used.

Therefore it is obvious that a fairly large sized motor would be required, the weight of which, when taken into account with that of the necessary accumulators, &c., would greatly exceed 2 lbs. or thereabouts.

I should advise him to use an elastic motor; 40 to 50 strands of $\frac{1}{16}$ square elastic, which would weigh approximately 5 to 6 ozs., would be plenty, I should think, besides allowing a safe margin for the weight of the propeller and the various accessories.

Stoke Newington.

B. H. LONGSTAFFE.

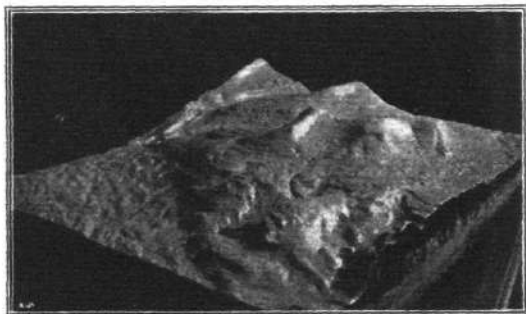
PETROL ENGINE MODELS.

[560] I am making a $\frac{1}{4}$ scale Farman model, to which I intend fitting a small petrol engine. Could any of your readers tell me of what horse-power this engine should be, and whether any great success has hitherto attended scale models driven by petrol engines.

A. WATSON.

TEACHING THE LAY OF THE LAND.

ONE of the first points which the uninitiated balloonist notices on looking down on the land above which he is floating, is the fact that it fails to arouse any sense of recognition by its geographical features. The truth of the matter is that man has never been able to study the surface of the earth on a realistic small scale, for maps, even when highly coloured, are no more than symbolical at the best. There is the possibility of a change in the future, however, which should be thoroughly in keeping with the needs of modern education, as the Geographical Model Works, of Newcastle-on-Tyne, are at work on



accurate relief maps which should do much to prepare the student for a knowledge of the earth as seen from the air. The immediate value of these maps relates, of course, to their geological import, and that which has first been produced, a photograph of which we give, shows the district of Ingleborough, near Settle, which is considered by Professor Hughes to be the most interesting geological spot on the earth's surface. Quite apart from this, however, it is to the general principle of teaching "contour" which, in the interests of the world of flight, we find cause to extend a welcome and wishes of success.

Aeronautical Patents Published.

Applied for in 1908.

Published June 2nd, 1910.

- 11,367. G. MARTIN. Aeroplanes.
- 11,501. C. CROMPTON. Steering and balancing.
- 13,310. F. E. BUMÉ. Airships or flying machines.
- 24,658. H. W. THOMPSON. Automatic balancing.
- 27,974. S. LAWRENCE. Aerial propellers.

Applied for in 1910.

Published May 26th, 1910.

- 630. W. PEGA AND K. EMICH. Propellers for airships.

DIARY OF FORTHCOMING EVENTS.

British Events.

1910.	1910.
June 4. Kite and Glider Contests.	July 23. Balloon Race, Hurlingham.
Kite and Model Aeroplane Assoc.	July 28-Aug. 3. Southport.
June 25-July 2. Wolverhampton.	Aug. 6-13. Lanark.*
July 2. Balloon Race, Hurlingham.	Aug. 15-20. Aintree.
July 11-17. Bournemouth.*	Aug. 24-27. Cardiff.
July 16. Kite and Models Competition. Kite and Model Aeroplane Assoc.	Aug. 17-24. Southend.

Foreign Events.

1910.	1910.
June 5-12. Vichy.	Sept. 24-Oct. 3. Milan.
June 5-15. Budapest.*	Oct. 18-25. St. Louis. Gordon-Bennett Balloon Race.
June 26-July 10. Rheims.*	Oct. 25-Nov. 2. America. Gordon-Bennett Aeroplane Race.
July 24-Aug. 10. Belgium.	
Aug. 25-Sept. 4. Deauville.	
Sept. 8-18. Bordeaux.	

* International.

BACK NUMBERS OF "FLIGHT."

SEVERAL back numbers are now very scarce, and have been raised in price as follows:—

1909.		s.	d.
No. 2, Jan. 9, containing	Table of Propellers ...	1	6
6, Feb. 6, "	" "How Men Fly" ...	1	0
	Aeronautical Bibliography.		
8, " 20, "	Wright Bros.' Elevator Patents.		
	Flying Ground at Farnbridge	1	0
	Illustrated Glossary.		
10, Mar. 6, "	Human Side of Flying ...	1	0
	Aero Club Ground at Shellbeach.		
	Military Aeronautics.		
12, " 20, "	Souvenir Supplement ...	1	6
15, Apr. 10, "	Engines at Olympia ...	1	0
16, " 17, "	Prize List ...	3	6
	Models at Olympia.		
31, July 31, "	Blériot Flyer ...	2	0
	(Full page drawing.)		

Other back numbers (excepting Nos. 3 and 4, which are out of print), post free, 1s. 6d. each, including descriptions and scale drawings of the Voisin (Nos. 33 and 34), Curtiss (No. 27), Cody (No. 34), Farman (No. 42), and Wright (No. 63) biplanes, the Santos Dumont (Nos. 40 and 41), Antoinette (Nos. 43 and 44), and Grade (No. 50) monoplanes, and of a full-size Wright glider (Nos. 38 and 39).

BINDING COVERS for Vol. I, price 2s. 4d., post free.

TITLE PAGE and INDEX for Vol. I, 2d., post free.

Readers' own copies bound, price 4s. per part (including cover, title page, and index, postage extra).

VOLUME I, bound complete with all scarce numbers, 25s., post free; in two parts, 28s. 6d., complete.

Prices of special binding on application.

FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.
Telegraphic address: Truditur, London. Telephone: 1828 Gerrard.

SUBSCRIPTION RATES.

FLIGHT will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.		ABROAD.	
	s. d.		s. d.
3 Months, Post Free ...	1 8	3 Months, Post Free ...	2 6
6 " " " ...	3 3	6 " " " ...	5 0
12 " " " ...	6 6	12 " " " ...	10 0

Cheques and Post Office Orders should be made payable to the Proprietors of FLIGHT, 44, St. Martin's Lane, W.C., and crossed London and County Bank, otherwise no responsibility will be accepted.

Should any difficulty be experienced in procuring FLIGHT from local news-vendors, intending readers can obtain each issue direct from the Publishing Office, by forwarding remittance as above.